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The dynamics of the relative global sector effects and contagion in emerging markets equity returns

Nicholas Addai Boamah (PhD)

Department of Real Estate and Land Management, University for Development Studies, Wa Campus, Wa, UWR, Ghana

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ABSTRACT

The paper decomposes the variance of emerging market equity returns to the global market and country specific constituents. The global component is then scaled by the country specific component to determine the relative global sector influence in country equity returns. Additionally, the paper explores contagion by testing for significant shifts in the BEKK-correlations between the emerging markets and the world market around the identified structural breakpints in crisis periods. Using the Quandt test of unknown breakpoint, evidence is provided of significant structural breaks in the relative global effects in all of the markets. Additionally, the identified structural breaks mostly correspond to global effects particularly the 2008 global financial crisis (GFC) and the 2007 global oil shocks (GOS) that heralded the GFC. The findings show that the global effects are time-varying, and that the GFC or GOS led to significant surge in the relative global influence in the emerging markets returns. The evidence indicates a reversion in the rate of change of the global effects to around the pre-GFC or pre-GOs level for all of the markets; however, there is no reversion in the global effects. This suggests that the increase in the global effects resulting from the GFC or the GOS may be permanent. Additionally, the findings infer contagion from the world to the emerging markets around the GFC.

1. Introduction

The paper explores the relative importance of global factors in the equity returns of and contagion in 20 emerging stock markets (ESMs). Studies such as Lessard (1976); Martin and Rey (2000); Gerard et al. (2003); Bae et al. (2012) show the importance of global effects for diversification gains, cost of capital determination, asset allocation decisions, and crisis transmission across financial markets. Thus, the gains from diversification are influenced by the relevance of country and global effects. Bekaert and Harvey (1995); De Santis and Gerard (1997); Driessen and Laeven (2007); Bai and Green (2010) suggest that diversification benefits are high and the cost of capital is high when national factors mainly drive equity returns. This is partly due to the inability of investors to harness arbitrage opportunities across segmented financial markets (Campbell and Hamao, 1992). If markets however, exhibit simultaneous contagion, then the gains from diversification will be low or non-existing during crisis period.

Li et al. (2003) and Berger et al. (2011) find that diversifying into ESMs reduces risk significantly. This may be due to country effects dominating global ones or the prevalence of a large number of industries that respond more to local factors than global ones in ESMs. Heston and Rouwenhorst (1994) argue that international diversification gains, partially arises

E-mail address: addaianas@yahoo.com

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from industrial diversification. Also, Carrieri et al. (2004) observes that the world market integration of industries within a country drives the country's integration with the world.

Despite the liberalization efforts of some ESMs, studies such as Bekaert and Harvey (1995); Alagidede (2010), and Bekaert et al. (2011) note segmentation in these markets. Bekaert et al. (2011) argue that the extent of ESM's segmentation is declining overtime. Bekaert and Harvey (1995) suggest that the liberalization efforts of some ESMs did not enhance their degrees of world market integration. Similar observations are made by Hatemi and Morgan (2007) and Alagidede (2010) who attributes the finding partly to the home bias attitude of investors, informational inefficiency, inadequate investor protection, and high risk perceptions of ESMs.

Bae et al. (2012) observe an increase in global effects on some ESMs around the 1997 Asian Financial Crisis (AFC). They argue that the process is transitory. Boamah et al. (2016a) explores the country and industry effects in a sample of African markets and argue that global effects in these markets surged around the 2008 global financial crisis (GFC). Contrary to Bai et al. the authors suggest that the impact of the crisis may be permanent. Pukthuanthong and Roll (2009) observe that whereas, some ESMs have become increasingly globally integrated, others have assumed a high level of global segmentation through-time.

An increase in global integration around crisis period such as those observed by Bae et al. (2012) and Boamah et al. (2016a) could be a case of contagion. Rigobon (2003) show after controlling for heteroskedasticity bias in the correlation coefficient that there was no contagion but increased financial market interdependence around the 1987 US market crash, 1994 Mexican crisis, and the Asian financial crisis. Corsetti et al. (2005) however, find evidence of both contagion and interdependence during the 1997 Hong Kong market crisis.

In recent studies, Alexakis et al. (2016) and Jin and An (2016) explore contagion in ESMs around the GFC and the Euro zone Sovereign Debt Crisis (ESDC). Alexakis et al. observe differences in ESMs contagion around the GFC and the ESDC. The authors find evidence of contagion for Latvia and Lithuania during the GFC, although, no evidence of contagion was found during the euro-zone crisis. Similarly, Estonia was immune from the GFC, however, evidence of contagion was found during the ESDC. Jin and An (2016) observe contagion between the US and ESMs around the GFC. Jin and An and Alexakis et al. argue that the differential response of the ESMs to the crisis depended on their levels of financial and economic integration. This appears consistent with Lehkonen (2015) and Boamah et al. (2016a) finding that the extent of financial market integration and economic engagement impact on the transmission of crisis across national markets.

This paper contributes to prior emerging market studies such as Berger et al. (2011); Bekaert et al. (2011); Bae et al. (2012); Boamah et al. (2016a). It explores the relative global effects in ESMs over a period that captures the GFC and the preceding 2007 global oil shocks (GOS). This permits an analysis of the impact of these global events on the global effects in the ESMs. In addition, the question of whether or not ESMs respond more to global or local events is examined. Another contribution of the paper is in exploring the question of contagion around the 2007 and 2008 crisis period. Further, the paper explores the trajectory of the rate of change of the global effects, and analyse reversionary trends in the rate of change around the GFC and GOS. It also, explores potential relationship between the rate of change and the dynamic correlations between the ESMs and the global market factor. Additionally, the paper explores the persistence of the impact of the GFC/GOS on the global effects. The paper identifies and interprets structural shifts in the global effects, also, the behaviour of the rate of change and the level of the global effects around any identified significant structural shifts are explored. The paper investigates whether structural shifts in the relative importance of global influence in the ESMs coincide with changing integration.

The remainder of the paper is structured as follows. An overview of the emerging markets is presented in Section 2. Section 3 discusses the methodology of the paper. This is followed by the description of the data in Section 4. The empirical results are presented and discussed in Section 5, with Section 6 presenting the conclusion of the study.

2. Emerging markets characteristics

The emerging markets are generally small relative to the size of their economies, are less capitalized and have limited number of listed firms (Bekaert et al., 2007; Ntim et al., 2011; Neaime, 2012). Tables 1 and 2 indicates that aside South Africa (267%), Singapore (245%), Malaysia (136%) and Thailand (106%), market capitalization to Gross Domestic Product (GDP) ratios of the sampled emerging markets are less than 100%; the ratio ranges from 11% (Argentina and Nigeria) to 76% (India) in 2014. Additionally, the markets are less capitalized; the market capitalization in 2015 is highest for India ($1,516,217 million) and lowest for Mauritius ($7,238.55 millions). Similarly, the number of listed firms ranging from 29 (Ghana) to 5835 (India) is generally few.

A feature of the ESMs is high level of illiquidity (Hearn, 2014; Boamah et al., 2016b). Table 1 shows that the ESMs are generally illiquid based on the turnover or the value of trade to GDP ratio. Relying on the turnover ratio, the most liquid and the less liquid markets are respectively Brazil (86%) and Ivory Coast (4%) in 2015. The illiquidity on the ESMs has implications for cross-border investments flows, the global integration of, crisis transmission and transaction cost on the ESMs (García-Herrero et al., 2009; Bekaert et al., 2011; Hearn, 2014; Lehkonen, 2015). Hearn (2014) observe illiquidity based transaction cost on some ESMs during the 2010 Arab spring. Similarly, Boamah et al. (2016b) argue that illiquidity was partly responsible for the delayed response of some African markets to the GFC. Sugimoto et al. (2014) and Lehkonen (2015) note that pre-crisis level of integration influenced the impact of the GFC on financial markets.

García-Herrero et al. (2009) similarly note that illiquidity constrained cross-border investment flow on the Asian financial markets post the Asian financial crisis. Unsurprisingly, Table 1 indicates that foreign investment flows to the ESMs are