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Frontier stock market integration and the global financial crisis



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ABSTRACT

This paper examines the stock market integration between frontier and leading markets, focusing on the periods of pre and post global financial crisis. Using time-series analysis, the results mostly support leading markets can Granger-cause frontier markets. Frontier markets in different regions have distinct relationships with leading markets. Population growth, industry value, interest rate, tax rate, and tariff of the frontier markets significantly influence the integration between both markets. Energy, gross national income, stock traded value, and high-technology exports of leading markets saliently influence the integration. Finally, the global financial crisis impacts the relationship between the frontier and leading markets and changes the determinants of stock market integration.

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1. Introduction

Countries in the early stages of economic development generally demonstrate long-run growth potential, and frontier markets today are often compared to emerging markets in the late 1990s. Frontier markets, viewed as hugely untapped economic potential and diversification benefits, can relate long-term investment opportunities in recent years. Hence, the topic researching on frontier

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equity markets has become extremely imperative because such markets not only facilitate particular countries' economic development, but also help investors to diversify their portfolios. Compared with the large amount of literature focusing on developed and emerging markets' integrations (Driessen & Laeven, 2007; Rua & Nunes, 2009, among others), only few empirical researches related to frontier stock markets have been carried out. For example, Berger, Pukthuanthong, and Yang (2011) study the potential diversification benefits of frontier markets.

Most previous researches of market integration focus only on financial markets, whereas less attention on the issues of integration determinants of frontier equity markets. According to the theory of stock market co-movement, there is a close link between market prices and country development. For example, Panton, Lessig, and Joy (1976) found that the U.S. is relatively well developed country and has open international capital flows. This paper attempts to discuss the topics of the theory of stock market co-movement, such as exploring the co-movements between frontier markets and regional leading markets, the co-movement change between the subperiods before and after the global financial crisis, and any other factors of influencing the co-movement between frontier and leading equity markets.

In this study, a leading country (e.g., the U.S.) is defined as that one country which has the highest GDP within its own sub-region.¹ As such, we address the following three issues: firstly, what is the dynamic interrelationship between frontier and leading stock markets (i.e., regional leading market and the U.S.)? Secondly, does the dynamic relationship change between both subperiods before and after global financial crisis? Lastly, if integration relationships do exist, which factors can influence the market integration?

We explore all potential dynamic interrelations between frontier and leading equity markets through four hypotheses: (1) Leading market leading hypothesis: a leading market exerts a unidirectional leading effect over market returns. The hypothesis may be sustained by an open economy and large capital in the leading market. (2) Frontier market leading hypothesis: the stock returns of frontier market highlight a unidirectional leading effect over the leading market. The hypothesis may be sustained by the natural resource of the frontier market. (3) Feedback hypothesis: there exists a bi-directional causality relationship between stock returns of frontier and leading markets, representing that frontier and leading markets need to be considered simultaneously. In other words, the change of frontier market returns precedes leading markets, and vice versa. (4) Neutrality hypothesis: no causal relation exists between the stock returns of frontier and leading markets, meaning that frontier markets' stock returns are not correlated with market returns.

Our paper contributes to existing relatively studies with the following three ways. First, the extant empirical research on frontier markets uses the U.S. to explore the stock market integrations (Samarakoon, 2011). Frontier markets might be more correlated with their regional leading markets because of similar culture, natural resources, and geographical factors (e.g., the Middle East is predominantly driven by crude oil production). Since each individual frontier economy is endowed differently, the market integration may be country-specific. Thus, we expand the few related studies by evidencing from the co-movement of frontier markets and regional leading markets, rather than summing up a general conclusion about the existence of stock market integration with the U.S.

We not only find that the leading stock markets significantly Granger cause frontier stock markets, but also discuss some possible opposite situations. The lead-lag relationship between the price movements of frontier and leading markets illustrates how one market reflects new information to the other, and how well both markets are linked together. We can draw a conclusion that there is a lead-lag relationship between specific countries, which benefits investors' portfolio in diversifying their investment by including frontier markets.

Second, in contrast to previous researches that simply examine the degree of financial integration of frontier markets, we seek to delve further into what lies behind the response (if any) in the integration between frontier and regional leading markets, such as the factors of economic policy or natural resources. Most previous studies of analyzing financial frontier market integration have focused on the country level (Adjasi, Osei, & Fiawoyife, 2011; Boubaker, Nguyen, & Taouni, 2009) or a specific

¹ Source: International Monetary Fund.

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