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Sector level cost of equity in African financial markets

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ABSTRACT

This paper assesses the effectiveness of Liu (2006) metrics in measuring illiquidity within a multifactor CAPM pricing model. Costs of equity are estimated using this model for the major sectors within Africa's larger equity markets: Morocco, Tunisia, Egypt, Kenya, Nigeria, Zambia, Botswana and South Africa. In all countries, the cost of equity is found to be highest in the financial sector and lowest in the blue chip stocks of Tunisia, Morocco, Namibia and South Africa. At an aggregate level, Nigeria and Zambia have the highest cost of capital.
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1. Introduction

The establishment and development of equity markets across African since the demise of the Cold War and subsequent restructuring of global capital flows has been driven by the need of many countries to attract foreign investment. Foreign Direct Investment (FDI) and portfolio investment are essential to supplement low domestic savings rates and are generally encouraged, despite political concerns about potential loss of sovereignty of national assets and vulnerabilities associated with financial contagion. African securities markets have achieved significant levels of institutional development during the last decade and strive to provide attractive and competitive venues for firms seeking to raise funds for much needed industrial and development projects. However, extreme illiquidity and segmentation are major

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concerns for both potential investors and firms as they attempt to source cheap capital and diversify ownership through domestic listing (Lesmond, 2005; Hearn and Strange, 2009).

Africa is a particularly interesting region in which to study securities markets given the current drive towards integration that is being actively pursued by regional bodies such as the New Africa Partnership for Development (NEPAD) and African Stock Exchanges Association (ASEA). There is a wide variety of markets at very different levels of development, from South Africa, which is the largest and most developed to the fledgling markets of Lusaka (Zambia) and Botswana. Contrasting levels of regulation and regulatory enforcement are reflective of the considerable variation in development amongst the continent's financial markets. Another factor that adds an intriguing dimension is the mix of legal regimes, with North and some West African markets influenced by French civil code (La Porta et al., 2008), as opposed to English common law in many other countries. Finally, a distinguishing feature in East Africa is the development underway in Kenya, which is preparing to act as a regional integrated hub market.

By its nature, liquidity is a difficult concept to define, largely due to its ability to transcend a number of properties associated with market transactions, such as tightness, depth, resiliency (Lesmond, 2005) and information (O'Hara, 2003). Empirically defined constructs designed to capture liquidity centre on measuring direct trading costs, such as tightness, by the bid–ask spread (quoted or effective) and indirect trading costs that are linked to depth and resiliency, which are often represented by price impact measures. The lack of reliable and consistent bid–ask quotes in many emerging markets suggests the use of market activity proxies in capturing liquidity, and there is little consensus regarding the appropriateness of using common measures such as turnover and, more recently, the price impact variable developed by Amihud (2002) (Lesmond, 2005).

However, the importance of including a measure of liquidity in pricing models and cost of equity analysis is supported by the poor performance of single-factor pricing models, particularly in emerging markets. Collins and Abrahamson (2006) provide costs of equity estimates for a variety of African markets but the analysis falters on the various forms of one-factor relationships used to model industry sector time series. The presence of severe illiquidity suggests a high degree of price rigidity, which lowers both variances and covariances between series (Hearn and Piesse, 2009), adding a significant bias in the betas, or their proxies, in CAPM type pricing models. Equally, costs of equity estimated through standard one-factor CAPM models (Correia and Uliana, 2004) fail to take into account the well documented effects of size and liquidity in explaining the cross section of returns (Martinez et al., 2005). Similar concerns relate to a study by Mishra and O'Brien (2005) that estimates the cost of equity using a two factor model at the firm level for 16 emerging markets that are included in the S&P Emerging Market Database (EMDB) (formerly IFC EMDB). This takes into account the market portfolio (MSCI World) and a political risk factor that relates the volatility of individual stocks to the volatility of the market. However, the implicit assumption that emerging markets are integrated with the global market portfolio and the omission of liquidity risk, which largely explains political risks, are particular sources of concern (Lesmond, 2005).

While the literature on the importance of liquidity has developed over the past decade, research on liquidity risk and its applications is much more recent. Pastor and Stambaugh (2003) find evidence that leveraged investors that face solvency constraints require higher expected returns for holding assets that are difficult to sell when aggregate liquidity is low. Furthermore, stocks with a higher sensitivity to aggregate liquidity generate higher returns than low-sensitivity stocks, suggesting that liquidity is an important variable in asset pricing. Additionally a serious caveat in asset pricing and the ability to capture the cross section of stock returns arises from the inability of either the traditional one-factor CAPM or its three-factor counterpart, including sixe and book-to-market factors as proposed by Fama and French (1993) (Liu, 2006). Liu (2006) and Daniel and Titman (1997) find considerable evidence of the limited explanatory power of the Fama and French model to capture the cross section of asset returns. Martinez et al. (2005) also present evidence of the limited explanatory power of the Fama and French three-factor model, although there is some evidence of some explanatory power in retaining the size factor. Finally, Jun et al. (2005) find evidence that stock returns in emerging markets are positively related to liquidity.

In addition to questions regarding the benefits of the book-to-market variable there are serious limitations to getting consistent accounting book values for firms in emerging markets. Emerging stock markets are highly skewed with many dominated by a handful of large firms while the rest are small and medium sized enterprises. Thus, a size factor should be retained within the pricing model to explain the cross section of returns. This study finds evidence that the liquidity and size factors are significant in

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