



Exchange risk premia and firm characteristics

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ABSTRACT

This paper examines the presence and the determinants of exchange risk premia in stock returns using firm level data from South Korea. We conduct empirical asset pricing tests based on cross-sectional data sorted by firm characteristics such as firm size, liquidity, foreign ownership, and industry. Using alternative model specifications and exchange rate measures, our results support the hypothesis of a significant unconditional exchange risk premium in the Korean stock market at firm and industry levels. More specifically, we find that the exchange risk premium is directly related to firm liquidity and inversely related to firm size and foreign ownership.

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1. Introduction

Foreign exchange risk is one of the major issues facing corporations in an increasingly globalized economy. Indeed, as shown by early theoretical models such as Shapiro (1974), Dumas (1978) and Choi (1986), exchange rate volatility affects the firm's expected cash flows which in turn affect the firm's value and its cost of capital. At the investor's level, while international diversification of portfolio holdings can improve the risk–return tradeoff for equity investors, the latter nonetheless face both direct and indirect foreign exchange exposure that could substantially reduce the portfolio diversification benefits if not properly hedged.

International asset pricing literature has approached this multifaceted question by studying whether foreign exchange risk is priced in the stock market. For instance, Adler and Dumas (1983) developed a theoretical

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model showing that in the presence of deviations from purchasing power parity (PPP), stock returns should include an exchange risk premium in addition to the traditional market risk premium. This is particularly relevant for emerging markets where empirical evidence suggests that asset pricing models may be misspecified if they do not include foreign currency risk premia (Boubakri and Guillaumin, 2011; Phylaktis and Ravazzolo, 2004).

Although strong empirical evidence now exists in support of the overall importance of the exchange risk premium in stock markets, both statistically and economically (e.g. Carriero et al., 2006a, 2006b; Chaieb and Errunza, 2007; Choi et al., 1998; De Santis and Gerard, 1998; Doukas et al., 1999; Dumas and Solnik, 1995), there is still little understanding of how the documented currency premium varies across firms within a given country and subject to common exchange rate volatility. Indeed, most of the previous empirical studies are based on aggregate market level data and therefore allow us at best to estimate the currency risk premium on average for a given country compared to other countries in the sample. However, given the firm-specific nature of foreign exchange exposure, an aggregate country-level approach may not be very informative to active international portfolio investors who try to select specific firms or industries in a given country. This motivates our attempt to bring further light on this issue.

To study firm-level differences in the currency risk premia that affect equity returns, we take the perspective of a US investor using a single foreign country framework and we focus on the estimated exchange risk premium in stock returns based on firm-level data from South Korea. Our choice of Korea, as one of the major emerging markets, allows us to observe a country context that favors international trade and trade openness, has a functional and open stock market, and at the same time exhibits high real exchange rate volatility, especially after the shift from a pegged regime to a free floating exchange rate regime following the Asian crisis of 1997. Korea is also one of the main target countries for US portfolio investors interested in emerging market securities.¹ We also have access to detailed data on individual listed firms from the Korean commercial database *fn-guide*, which allows us to explore the link between the exchange risk premium and specific firm characteristics. Thus, this context is more likely to reveal the firm-level effects of exchange risk pricing that we are trying to draw attention to.

In particular, we are interested in analyzing whether the estimated exchange risk premium varies according to specific firm characteristics such as firm size, liquidity, foreign ownership structure, and industry affiliation. Therefore, our contribution is twofold. First, we estimate the exchange risk premium within an asset pricing model using firm level data to explore cross-sectional differences between firms that are subject to common exchange rate volatility in a similar macro-economic context. Second, we investigate whether there is a link between the estimated exchange risk premium and specific firm characteristics. The second question is particularly interesting given the considerable number of previous studies documenting that cross-sectional variations in stock returns can be related to firm-specific characteristics, such as firm size, book-to-market value, trading volume, and dividend yield (see Brennan et al., 1998; Chan et al., 1991; Fama and French, 1992). Thus, we try to investigate whether such characteristics can also explain the cross-sectional variations in the exchange risk premium since the latter can be a significant component of the total equity returns as demonstrated by previous evidence.

Our methodology is based on unconditional asset pricing tests since we are interested in documenting the relationship between exchange risk premium and firm characteristics on average over the long run. Our undertaking is also motivated by the notable importance that the exchange risk premium may have on firm valuation in emerging markets, especially from the perspective of the foreign investor who faces foreign currency risk, in addition to other explicit or implicit barriers when investing in emerging equity markets (for instance, see Carriero et al. (2013) on the importance of implicit barriers).

Our results can be summarized as follows. First, we find strong evidence supporting the existence of a significant unconditional exchange risk premium in the Korean stock market. This is particularly important, as studies focused on major developed markets (e.g. US and Japan) have failed to significantly point out this effect using an unconditional pricing model. Our evidence is confirmed by both firm and industry level analyses and is robust to model specifications (e.g. full segmentation or partial integration) as well as

¹ The US Department of the Treasury listed 15 countries attracting the most US foreign equity investments at the end of 2012. They were 8 developed countries, 2 offshore markets and 5 emerging markets. The United Kingdom (\$758 billion) was the largest one and followed by the Cayman Islands (\$574 billion) and Japan (\$427 billion). Korea (\$141 billion) was the second largest one following Brazil (\$150 billion) among emerging markets.

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