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# The informational content of ADR mispricing

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ABSTRACT

We propose that the persistence in ADR mispricing is due to information asymmetry associated with the underlying stocks. We employ three alternative proxies for the information asymmetry including the investment freedom score of the underlying stock country, the listing level of the ADR, and the idiosyncratic risks of the underlying stock. We find that mispricing is higher for underlying stocks from countries with low investment freedom, for level I ADRs, and for underlying stocks with higher idiosyncratic risk. Information asymmetry is priced accordingly in ADR valuations.


## 1. Introduction

We investigate whether information asymmetry associated with the underlying stock is priced in American Depository Receipt (ADR) valuation. This is of particular importance since potential arbitrage

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opportunities might exist if there is a departure from parity (ADR mispricing) between the ADR price and the exchange rate adjusted price of the underlying stock. Our goal is to examine whether the magnitude of ADR mispricing and potential arbitrage varies over time and across securities in a way that is related to distinctive proxies of information asymmetry. Specifically, we hypothesize that ADR mispricing is associated with the degree of investment freedom in the ADR firm's home market, the type of program a firm utilizes to cross-list its shares on the U.S. market, and the idiosyncratic risk of the underlying firm shares.

We contribute to the literature in the following ways. First, prior studies attribute ADR mispricing to dividend payments and transaction costs (Eun and Sabherwal, 2003; Grossmann et al., 2007), and more recently to holding costs (Gagnon and Karolyi, 2010). We, on the other hand, emphasize investment freedom in the ADR firm's home market as one of the main drivers of ADR mispricing among other proxies of information asymmetry. While economic freedom has been found to partially explain the degree of stock price volatility of ADR firms (Blau et al., 2014) and firm specific stock price volatility has been found to partially explain ADR mispricing (Gagnon and Karolyi, 2010), neither of these studies has analyzed investment freedom. Moreover, no previous study suggests a direct link between investment freedom of the local markets and the persistence of ADR mispricing.

Second, we provide detailed analyses of the relationship between ADR mispricing and the type of cross-listing program a firm uses to enter the U.S. market. In the U.S., there are four distinct cross-listing programs, which generally differ in terms of cost, listing and reporting requirements, and type of trading (i.e. exchange traded, OTC or private placement). While previous literature highlights ADR market performance based on the type of listing program (see e.g. Bancel et al., 2009; Doidge et al., 2004) and compares ADR performance with several performance benchmarks (see e.g. Ejara and Ghosh, 2004; Foerster and Karolyi, 2000), research investigating the impact of the type of cross-listing programs on ADR mispricing is scarce.

Our results suggest a significantly strong negative relationship between the investment freedom present in a cross-listed firm's home market and the ADR mispricing of the firm. Furthermore, ADR mispricing is considerably larger and statistically significant for non-exchange listed level I firms as compared to other types of listings. In accordance with previous literature, we find a statistically significant positive relationship between ADR mispricing and the idiosyncratic risk of a firm's underlying stock. Finally, when combining our proxies of information asymmetry, our analysis indicates that level I ADRs from countries with low investment freedom and high idiosyncratic risk experience the largest values of absolute mispricing.

The results indicate that the existence of information asymmetry determines the degree and the persistence of ADR mispricing. In particular, the low level of investment freedom leads to uncertainty within a foreign market, causing higher stock price volatility and increased ADR mispricing. Likewise, the type of cross-listing a firm uses to offer depositary receipts on the U.S. market determines the degree of transparency to investors. Since level I programs have only limited restrictions for the issuer and require minimal reporting requirements, increased ADR mispricing occurs as a consequence of suboptimal information flow between investors and firms. Lastly, in combination with the type of ADR program used to cross-list, firms experience higher levels of idiosyncratic risk when cross-listed via level I. Hence, the higher level of idiosyncratic risk is caused by lower levels of information efficiency, leading to more pronounced ADR mispricing.

The remainder of this paper is structured as follows: Section 2 provides an overview of the relevant literature and hypotheses development. In Section 3 we provide information on data sources and methodology including the development of our main variables. Section 4 includes our empirical findings and robustness test. Finally, Section 5 summarizes and concludes.

## 2. Literature review and hypotheses development

### 2.1. Investment freedom

Investment freedom refers to both inflows and outflows of capital on foreign investment. Limitations on investment freedom can have a significant impact on entrepreneurial activities and economic growth (Alfaro et al., 2004; Bengoa and Sanchez-Robles, 2003). Hence, countries considered to have a