行政院國家科學委員會補助專題研究計畫成果報告

匯率與利率對 ADR 定價的影響
The Effect of Exchange-Rate and Interest-Rate Risk on ADR Pricing

計畫類別：☑個別型計畫　　□整合型計畫
計畫編號：NSC 90-2416-H-032-008
執行期間：90 年 8 月 1 日至 91 年 7 月 31 日

計畫主持人：陳達新
共同主持人：盧陽正

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一、摘要

This paper tests the hypothesis that the ADR portfolio returns are sensitive to the fluctuations of the ADR-originating country's currency and interest rates. Two of the commonly-used asset pricing models (i.e., a multi-index model and an Arbitrage Pricing model) are employed and the ADR portfolio returns are regressed on a set of possible pricing factors, which include the U.S. market (benchmark) portfolio returns, foreign currency returns, and foreign money market rate returns. The major findings of this study suggest that exchange rates and interest rates should be considered as important elements in ADR pricing. The exchange-rate sensitivity of ADRs also provides investors with potential diversification benefits and hedging opportunities related to international investment.
Keywords: ADR, Interest rate risk, exchange rate risk

二、緣由與目的

American Depository Receipts (ADR) are U.S. dollar-denominated negotiable receipts for equity shares of non-U.S. firms. This financial arrangement allows foreign companies to be listed and traded in U.S. equity markets. As a result of the increasing globalization of today's capital markets, intensifying privatization of enterprises around the world, and U.S. investors' growing need for international portfolio diversification, the ADR market has been rapidly expanding. The Bank of New York estimates that over the last decade, the compound annual growth rate for ADR trading volume reached 22%. In 1999, ADR share trading volume reached a record-high of 22.8 billion shares valued at $758 billion.[1]

The research question is: how are ADRs priced in the equity markets? This study investigates the roles of both exchange-rate risk and interest-rate risk as pricing factors for ADRs. Exchange-rate exposure represents the sensitivity of the value of the firm to exchange rate movements. Existing empirical evidence concerning the association between asset returns and exchange-rate exposure is mixed. Although the majority of stock markets worldwide are found exchange-rate sensitive, little exchange rate exposure has been found for U.S. firms, including U.S. multinational firms that conduct intense currency conversions in their daily business. The question, then, is what kind of role, if any, exchange rate exposure plays in the pricing process of ADRs, which are cross-listed on both stock markets in the U.S. and in the home country.

Although strong evidence has been found to support the fact that interest rate exposure plays an essential role in pricing various assets, no existing empirical study has yet extended the research to the field of ADRs. ADRs are issued by foreign firms whose sources of funds rely, not only on the U.S. capital market, but also on their domestic capital markets, and further, are backed by the underlying securities which trade in the corresponding foreign country. As a result, changes in foreign interest rates could alter the ADR-originating firms' cost of capital and, consequently, affect the pricing of the respective ADR.

Occasionally, the financial markets are roiled by financial crises. Several incidences of international financial turmoil (e.g., the 1992 British Pound devaluation, the

[1] See http://www. bankofny.com/adr/.

1994 Mexican Peso devaluation and the 1997 Asian solvency crisis) occurred within the sample period for this study; therefore, we also investigate whether the magnitude of ADR exposure was influenced by either exchange-rate or interest-rate shocks.

三、結果與討論

The findings of this study suggest that exchange rates and interest rates should be considered as factors in ADR pricing. Further, the results support the hypothesis that ADRs for both developed and developing countries, on average, are exposed to exchange rate risk. Accordingly, ADR investors should take the exchange risk premium into consideration. On the other hand, the exchange-rate sensitivity of ADRs also provides investors with potential diversification benefits and hedging opportunities related to international investment. Trading ADRs of a specific country could be used as an alternative to "cross-hedging" the currency risk relevant to that country, provided that transactions in its currency are subject to higher costs or more restrictions than trading in the ADR market.

With regard to foreign interest rate exposure, however, the existing evidence is not as clear. On average, the valuations of European ADRs are found sensitive to interest rate fluctuations that occur both in the ECU market and in the corresponding European nation, suggesting that in asset pricing, the European money markets are relatively close substitutes for the U.S. money market. ADRs originating in Latin America or Asian-Pacific nations (except for Australia) generally fail to exhibit sensitivity to their corresponding money market rates. There are several possible explanations for these interest rate scenarios. One, these nations, unlike their European and Australian counterparts, do not have a money market that is "mature" and "efficient" enough to reflect the true cost of capital. Two, the financial markets of these nations may lack the integrity that their American and European counterparts have, and therefore, the performance of the ADR equity market does not co-integrate with the money market fluctuations. Last, the money markets in these nations may be too small in size (compared with the U.S. market) to play any significant role in determining the ADR-issuing firms' cost of capital.

Last, the findings of structural changes around several instances of major international financial turmoil in the 1990s offer additional evidence for the existence of exchange/interest rate exposure. As expected, the sharp fluctuations in the foreign financial markets alter the pricing behaviors of ADRs by adjusting the magnitude of sensitivity to foreign exchange/interest rates.

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