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Using survey data to resolve the exchange risk exposure puzzle: Evidence from U.S. multinational firms

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A B S T R A C T

This paper examines the effect of unexpected exchange rate movements on U.S. shareholder wealth. Empirical results based on a sample of 634 U.S. multinational firms (1) confirm previously reported evidence that the disaggregation of the worldwide trade-weighted U.S. dollar exchange rate index into seven region-specific trade-weighted indices increases the precision and significance of exposure estimates; (2) show that models assuming that changes in spot exchange rates are unanticipated are frequently misspecified and, thus, unable to correctly detect the impact of currency movements on firm value; (3) reveal that forward and survey expectations enable us to distinguish between the effect of 'realized' and 'unexpected' currency movements; and (4) reveal that investors making pricing and hedging decisions prefer to use the information contained in short-term forward and survey expectation rates to the information included in long-term forecasts.

1. Introduction

Since the breakdown of the Bretton Woods fixed-parity system in the early 1970s, the volatility of exchange rates and its associated risks have become an increasingly important component of international financial management. It is conventional wisdom that exchange rate movements are an important

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major source of macroeconomic uncertainty that influences the profitability and value of firms involved in international activities. Standard economic analysis implies that exchange rate movements affect both the current and future expected cash flows of a firm's operation and its discount rate employed to value the firm. The wide currency fluctuations experienced during the last few decades heightened the interest in the potential vulnerability of multinational firms to foreign exchange rate risk; this issue has spawned a considerable amount of research. Moreover, assessing the sensitivity of firm value to exchange rate changes has been one of the most challenging issues in international financial management over the last two decades.

From a theoretical perspective, exchange rate fluctuations should thus have a significant impact on firm value, regardless of whether the firm is domestically or internationally oriented (Adler and Dumas, 1984; Levi, 1994). Numerous papers analytically focus on the foundations of exchange risk exposure and enhance our understanding of the mechanism through which exchange rate shocks influence firm value. However, in contrast to theoretical expectations, previous empirical evidence on exchange exposure seems conflicting and is mixed at best. While studies have so far documented weak contemporaneous relationships between exchange rates and U.S. stock returns, international evidence focusing on more open economies yields more significant currency risk exposure estimates. A possible rationalization for the difficulties in documenting a measurable impact of foreign exchange risk on stock market values is that firms are aware of their currency exposures and are eliminating foreign currency risk by hedging (Bartov and Bodnar, 1994). Since the long-term effects of exchange rate movements are difficult to ascertain, hedging effectiveness for future cash flows is, however, doubtful. Moreover the underlying assumption that the market should be aware of the impact of companies' foreign exchange risk management practices on an ongoing basis seems unlikely. The counter-intuitiveness of empirical findings has thus influenced the developments of new foreign exchange exposure estimation procedures. Starting from the seminal estimation models of Adler and Dumas (1984) and Jorion (1990), subsequent papers study the impact of different variable definitions, model specifications and estimation designs while others exploring the interrelations between exchange rate exposures and economic competitive environments. Even though recent findings generally favor the conclusions that exchange rate fluctuations affect shareholder wealth to some extent, these endeavors nonetheless meet with limited success in documenting the levels of exposures that theoretical research suggests.

Interestingly, the extensive literature on foreign exchange exposure reveals that most empirical studies assumed rational expectations and that 'unanticipated' exchange rate movements may be approximated by changes in 'realized' spot exchange rates. Although the rational expectations hypothesis has considerable appeal as a theoretical model, it does not appear to provide an adequate explanation of exchange rate expectations in most survey-based studies (Jongen et al., 2008). While some empirical studies tend to support the rationality hypothesis (Meese and Rogoff, 1983), the lack of consensus regarding the general outperformance of random walk forecasts over any other alternative exchange rate forecast model (Frankel and Rose, 1995) opens a new and promising research avenue that compares the impact of 'realized' versus 'unanticipated' exchange rate movements on shareholder wealth.

Unlike most previous studies on exchange risk exposure, Amihud (1994) and Gao (2000) recognized the inappropriate use of 'realized' exchange rate movements in testing the relationship between firm value and exchange rates and made a first effort to formally use time-series methods or fundamentals-based exchange rate models to generate 'unexpected' exchange rate movements. Surprisingly, however, while the foreign exchange rate market literature has for years stirred a considerable amount of interest in the exploration of survey-based expectations in order to understand the behavior of foreign exchange market participants (Frankel and Froot, 1987; Cavaglia et al., 1993, 1994; Jongen et al., 2008), no existing study has yet incorporated the huge amount of information contained in foreign exchange rate market expectations in order to distinguish between 'anticipated' and 'unanticipated' exchange rate movements and verify whether – or not – it is only to the extent that exchange rates move by more or less than had been expected that there are likely to be losses and gains, respectively, in economic value.

In this paper, we recognize the inappropriate use of 'realized' exchange rate movements in testing the relationship between firm value and exchange rates, and propose an empirical model that