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J. of Multi. Fin. Manag. 14 (2004) 261–281

Journal of MULTINATIONAL FINANCIAL MANAGEMENT

www.elsevier.com/locate/econbase

Foreign exchange rate exposure of US multinational corporations: a firm-specific approach

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Accepted 4 July 2003

Available online 17 December 2003

Abstract

We examine the relationship between changes in foreign exchange rates and stock prices of US MNCs. Using firm-specific foreign exchange indices, we find more firms with significant exposure than when a common foreign exchange rate index is used as in comparable studies. We find that the number of firms found to have significant foreign exchange exposure, as well as whether or not particular regions of a firm's geographic network structure is associated with any exposure, is dependent upon the type of foreign exchange rate index used to capture exposure. The findings in this study highlight the need for caution in the interpretation of previous studies of foreign exchange rate exposure.

JEL classification: F31; G15

Keywords: International finance; Hedging

1. Introduction

Economic theory presumes changes in foreign exchange rates impact the stock prices of domestic as well as multinational corporations (MNCs). Changes in exchange rates drive changes in cash flows and ultimately the value of the firm. Shapiro (1975) models the

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[1] The views expressed in this article are those of the authors and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the US Government.

doi:10.1016/j.mulfin.2003.07.008

theoretical effects of changes in exchange rates on the value of import and export firms alike. Export firms will gain from a devaluation of the host currency as their goods become more competitive while importers stand to lose. However, surprisingly there is little empirical evidence to support these theoretical predictions at the firm level. Previous studies have found little or no relation between changes in exchange rates and the value of the firm, leaving the question of why stock prices do not appear to be influenced by unexpected changes in exchange rates unanswered.[2] In this study, we re-examine the influence of changes of foreign exchange rates on equity shares of US MNCs. However, where previous efforts measured foreign exchange exposure by using a *common* foreign exchange index, in this study we form and use a *firm-specific* foreign exchange rate index based on the structure of each company's geographic network of foreign subsidiaries (FS).

The empirical research on foreign exchange rate risk has produced mixed results. Jorion (1990) finds only little significance for individual firm exchange rate exposures of US MNCs over the period 1971–1987. Amihud (1994) finds no evidence of a significant exchange rate exposure for the 32 largest US exporting firms over the period 1982–1988. And Bodnar and Gentry (1993) find only 11 out of 39 industries with significant exchange rate exposures for the period 1979–1988. One key characteristic of these studies is the reliance on a *common* exchange rate index that is applied to all of the companies in the sample. Because the companies operate in different, distinct international locations, it is perhaps not surprising that the foreign exchange rate exposure variable is found to have little significance when a common index is applied. Consider the case of two firms with substantially different operational networks. Firm A has two foreign subsidiaries located in two different countries while firm B has 15 foreign subsidiaries in 15 different countries. It is unlikely that the same common foreign exchange rate index depicts the foreign currency environment of both firms.

In this study, we use a firm-specific exchange rate proxy to examine whether the stock returns of US multinational corporations are influenced by changes in foreign exchange rates. The only other study we are aware of that implements such an approach is Ihrig (2001). Her study finds higher exposure for firms using firm-specific exchange rates. Here, we expand on this analysis by examining the relationship between a firm's operational network and its exposure. For example, we examine whether a firm's operations in Central America are associated with a firm's exposure in the same manner as its operations in the region defined by the North American Free Trade Agreement (NAFTA). This study contributes to the field's better understanding of exchange rate risk exposure in several ways. First, we provide complimentary evidence on the nature of foreign exchange rate exposure through the use of firm-specific measures. Secondly, when we compare firm-specific results to previous approaches, we show that not only is the magnitude of exposure dependent on the selection of a foreign exchange index, but so too is the sign of that exposure. This finding has direct implications on a firm's potential hedging and capital expenditure decisions.[3] Finally,

[2] Jorion (1990); Amihud (1994); Bartov and Bodnar (1994); and Shin and Soenen (1999) all study US MNCs while Bodnar and Gentry (1993); He and Ng (1998); and Di Iorio and Faff (2000) include or focus exclusively on foreign countries.

[3] If a firm determines that it is exposed to a specific currency and if this exposure is expected to continue in the long run, management may choose to invest in a manufacturing capability in that country in an attempt to establish an operational hedge.