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Corporate cash flow and stock price exposures to foreign exchange rate risk ☆

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Abstract

This paper estimates the foreign exchange rate exposure of 6917 U.S. nonfinancial firms on the basis of stock prices and corporate cash flows. The results show that several firms are significantly exposed to at least one of the foreign exchange rates Canadian Dollar, Japanese Yen and Euro, and significant exposures are more frequent at longer horizons. The percentage of firms for which stock price and earnings exposures are significantly different is relatively low, though it increases with time horizon. Overall, the impact of exchange rate risk on stock prices and cash flows is similar and determined by a related set of economic factors.

JEL classification: G3; F4; F3
Keywords: Corporate finance; Risk management; Exposure; Foreign exchange rates; Hedging

1. Introduction and motivation

One of the phenomena in financial economics that has recently attracted significant interest consists of the fact that nonfinancial firms do not seem to be significantly affected by foreign exchange rate risk, even if they have substantial international business or competition (e.g. Bodnar

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and Wong, 2003; Griffin and Stulz, 2001; He and Ng, 1998). In this context, it is important to note that virtually all existing empirical studies estimate currency exposures on the basis of stock prices. In contrast, the estimation of cash flow exposures pursued in this paper represents a sensible alternative to the common analysis of stock price exposures. In fact, it is the impact of exchange rate risk on corporate cash flows rather than equity prices per se, that is emphasized in the theoretical literature on corporate risk management, either for tax reasons, bankruptcy, investment decisions, managerial performance or compensation purposes. The empirical literature on exchange rate exposure, however, has focused on equity prices primarily since cash flow data for a large sample of firms are not readily available, and changes in stock prices are used as a proxy for changes in cash flows. In contrast, corporate managers will also be interested in the exposures of corporate cash flow measures such as sales, operating cash flow and earnings for reasons of corporate planning and risk management.

To this end, this paper contributes to the literature by performing the first comprehensive, large scale investigation of cash flow exposures of nonfinancial firms, using a new data set. In particular, it analyzes the foreign exchange rate exposures of unexpected changes in earnings based on analysts' forecasts from I/B/E/S and matched stock returns for 6917 U.S. nonfinancial firms.[1] Estimating both cash flow as well as stock price exposures and relating these to firm characteristics, the paper offers a new perspective and provides new evidence on the foreign exchange rate exposure of nonfinancial firms. It thus adds to our understanding of the effect of exchange rate risk on nonfinancial firms and how it can be measured, which is an essential prerequisite for effective hedging decisions. The results suggest that the impact of exchange rate risk on stock prices and aggregate cash flows is comparable and determined by a related set of economic factors, which is an important finding for the validity of theoretical exposure models and their application for exposure estimation.

Specifically, the paper shows that exposures based on earnings and stock prices are relatively similar for short horizons. To illustrate, significant exposures are identified for 5.6% (13.2%) of the sample firms based on changes in earnings (stock prices) with a one-month horizon. Moreover, cash flow and stock price exposures are significantly different in only about 10% of all cases. This is likely a consequence of foreign exchange rate exposures being both statistically and economically small, as documented in previous research (e.g. Koutmos and Martin, 2003; Griffin and Stulz, 2001; Khoo, 1994; Jorion, 1990). At the same time, cash flow exposures increasingly diverge from equity exposures over longer horizons, indicating that accounting measures become worse proxies for economic exposure.

While the number of firms with significant foreign exchange rate exposure is generally low, more nonfinancial firms show a significant exposure to at least one of the foreign exchange rates of the most important trading partners of the United States. Moreover, the fraction of firms with significant exposure increases with time horizon for earnings as well as stock prices. Finally, the results show that industry classification, the percentage of foreign sales, and market capitalization are important economic factors that determine the size of exposure of both earnings and stock prices in a way suggested by theory.

The layout of the paper is as follows. Section 2 reviews the literature on foreign exchange rate exposure. In Section 3, the concepts of exposure of cash flows and stock prices to exchange rate risk are discussed. Section 4 describes the sample and data sources. Section 5 presents and discusses the empirical results, while Section 6 concludes.

[1] Martin and Mauer (2005, 2003) use a cash flow approach to estimate exposure for U.S. banking firms which, as other financial institutions, however have fundamentally different business objectives with regard to financial risks.