

Exchange rate exposure, foreign currency derivatives and the introduction of the euro: French evidence

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Abstract

We investigate the impact of the introduction of the Euro on exchange rate exposures for French corporations and examine the corporate use of foreign currency derivatives to hedge exchange rate exposure post-Euro. Our findings indicate that the introduction of the Euro is associated with both a reduction in the number of firms that have significant exchange rate exposure and the absolute size of exposure. Consistent with these reduced exposures, French firms use foreign currency derivatives less intensively. Furthermore, the use of foreign currency derivatives is found to be associated with lower exchange rate exposure but there is insufficient evidence that these instruments are more effective in the post-Euro environment.

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1. Introduction

Exposure to fluctuations in foreign exchange (FX) rates has been broadly acknowledged as one of the major concerns of corporations with international activities. Understanding of a firm exposure to FX risk is also of clear interest to investors seeking to hedge their portfolios. Unexpected changes in FX rates can undermine the value of overseas earnings and the home currency value of assets and liabilities denominated in foreign currencies. Accordingly, academics have collectively made considerable progress in quantifying corporate FX rate exposures and in explaining how corporations deal with these exposures. Seminal work advanced by Adler and Dumas (1984), Jorion (1990, 1991), Amihud (1993), and Bodnar and Gentry (1993) has collectively provided a clearer understanding of FX exposures. Despite a few recent inconsistencies, the existing empirical results suggest that firms generally do not have significant FX exposures, contrary to economic theory and conventional wisdom, a result that has been argued by many commentators as indicative of FX exposure being ‘satisfactorily hedged’.¹

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¹ See for example Booth (1996) and Bartov, Bodnar, and Kaul (1996).

Given the contemporary empirical framework, in this paper we revisit the FX exposure domain by taking advantage of a key historical event in international finance — the introduction of the euro, which was finalized on January 1, 1999. This not only heralded the birth of a new major currency in the international capital markets but was also expected to bring significant benefits to the firms in participating countries as it dramatically altered the level of exposure to FX risk for firms within the European Monetary Union (EMU). At the aggregate level, the Bank of International Settlement (BIS) reports that the introduction of the euro has significantly reduced the turnover of OTC foreign currency derivatives (FCD) (BIS, 2002). The savings resulting from the reduction in corporate costs of managing intra-Europe FX risk is estimated to be in the region of 0.33% to 1.5% of the aggregate GDP of EMU countries (Hollein, 1999; Wildman, 1997).

Using a cross-sectional sample of French corporations pre-Euro (1996) and post-Euro (2000), we aim to: (a) examine the impact of the introduction of the Euro on French firms' FX exposure; (b) document the changing pattern, if any, of French corporate use of FCD to hedge FX exposure post-Euro; and (c) provide an empirical comparison of the role of FCD in alleviating FX exposure and test the major determinants of FX exposures in pre- and post-Euro periods.

Our findings strongly support the contention that the introduction of the Euro has reduced FX rate risk for European firms. In particular, our results show that, after the introduction of the Euro, there has been a reduction in both the number of French firms that have significant FX exposures and the absolute FX exposure coefficients. In response to this reduction in FX exposures, we find that although the proportion of firms that make use of FCD instruments remains unchanged, the extent to which these instruments are being used drops substantially from an average of 39.5% pre-Euro to 10% post-Euro. This finding provides micro evidence at the corporate level in support of the cumulative BIS figures. In a second stage regression where we use FX exposure as the dependent variable, we find some evidence that the use of FCD is associated with a lower level of FX exposures after the introduction of the Euro, although the impact of intra-Europe and outside Europe sales on FX exposures is largely unclear. Finally, as obvious from the *R-squared* statistics, our set of independent variables based on firm characteristics appears to explain a greater proportion of variations in post-Euro FX exposures as opposed to pre-Euro FX exposures of French firms.

The remainder of our paper is structured as follows. In the next section, we offer a brief review of the literature on FX exposure. Section 3 describes the sample and econometric framework used. We discuss the results in Section 4 and Section 5 concludes.

2. Exchange rate exposure and the use of foreign currency derivatives

Despite the conventional belief that FX exposure is related to a firm's value in some way via the impact on future cash flows and overseas assets' value, existing empirical work has met with limited success in showing a significant relation between firm value and changes in the value of the local currency. Various studies in the US show that only a small proportion of non-financial firms have significant FX exposure (Amihud, 1993; Bodnar & Gentry, 1993; Bartov & Bodnar, 1994; Choi & Prasad, 1995; Jorion, 1990, 1991). It appears that significant FX exposure has only been found for manufacturing and smaller companies (Chow & Chen, 1998; He & Ng, 1998). There is also some evidence of a relation between stock returns and FX fluctuations in countries outside the US (see De Jong, Ligterink, & Macrae, 2002; Doukas, Hall, & Lang, 2001; Nguyen & Faff, 2003; Kiyamaz, 2003 for Japan, the Netherlands, Australia and Turkey, respectively).

The lack of a significant correlation between FX risk and stock return has been a subject of much academic debate. Bartov and Bodnar (1994), for example, suggest two possible explanations. One is "low power" induced by broad-brush sample selection criteria whereby firms with no inherent FX exposure are included in the sample. Second, they reason that investors make systematic errors in estimating the change in a firm's value in response to FX fluctuations. They find that abnormal returns are related to lagged changes in the dollar as opposed to instantaneous changes. Shin and Soenen (1999) and Makar and Huffman (2001) also report supportive evidence for this 'lagged response' explanation. However, there is a growing body of research which argues that the observed insignificant FX exposure (mostly short term) is evidence that firms are successfully managing their exposures. Allayannis and Ofek (2001) report that FX exposure is significantly reduced via the use of FCD. Crabb (2002) also lends support to this contention by concluding that hedging activities partially lead to the failure of previous cross-sectional research to identify pervasive FX exposure.

Apart from the use of FCD, other factors have also been identified as determinants of FX exposure. Jorion (1990) shows that the degree of foreign involvement is the most important variable in explaining cross-sectional variation of

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