

THE EURO AND EQUITY MARKETS IN EURO-ZONE COUNTRIES

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ABSTRACT

The relationship between exchange rates and equity prices is an unresolved issue. Proponents of a negative relation between the international value of a domestic currency and the domestic equity prices believe that stronger currency leads to lower exports and thus lower sales, profits, and stock prices for domestic firms. On the other hand, supporters of a positive relation between the international value of a domestic currency and the domestic equity prices argue that a strong domestic currency attracts foreign investors to the domestic equity markets. They further argue that a rising domestic currency leads to expectations of a future rise and therefore increases domestic investment incentives. While both views may be correct in certain time periods, the long term relationships between these two endogenous variables seem to be best described as unstable. In this paper, we hypothesize that both exchange rates and equity prices are endogenous variables, and thus their long-term relationship should be dependent on the predominant exogenous variable that causes movements in these variables. We test our hypothesis by empirically examining the relationship between the international value of the Euro and equity prices in the Euro Zone countries. We find evidence that this relationship is insignificant and unstable. Our findings provide support for the view that assuming a stable and strong relationship between exchange rates and equity prices is misleading.

INTRODUCTION

Although there is a dearth of literature on the relationship between exchange rates and equity prices, the direction and the long-term stability of the relationship remains an unresolved issue. While some studies present

empirical evidence in support of a negative relationship between movements in the international value of a domestic currency and domestic equity prices, others find the evidence of a positive relationship. Proponents of a negative relation believe that stronger domestic currency leads to lower exports and thus lower sales, profits, and stock prices for domestic firms. Supporters of a positive relation argue that a strong domestic currency attracts foreign investors to the domestic equity markets. They further argue that a rising domestic currency leads to expectations of a future rise and therefore increases domestic investment incentives. Empirical Studies by Frennberg (Frennberg, 1994), Choi (Choi, 1995), Ajayi and Mougone (Ajayi & Mougone, 1996), Bahmani-Oskooee and Domac (Bahmani-Oskooee & Domac, 1997), and Wu (Wu, 2000) all present evidence in support of a negative relationship between the value of domestic currency and stock prices. On the other hand, studies by Friberg and Nydahl (Friberg & Nydahl, 1999) and Hau & Rey (Hau & Rey, 2002) are among studies that conclude a positive relationship between these variables.

While inferences presented by both groups about the exchange rate/stock prices relationship may be correct in certain time periods, the long term relationship between these two variables seem to be best described as unstable. In this paper, we argue that exchange rates and stock prices are both endogenous variables, and thus their long-term relationship should be dependent on the type of the predominant exogenous variable that would cause changes in these variables. For example, the nominal interest rate may be an exogenous variable, which may play a key role in relating exchange rates to stock prices. Since nominal interest rates are by definition composed of the real interest rate and the expected inflation, the pattern of the relationship between stock prices and exchange rates should depend on whether the disturbance is a real interest rate disturbance or a pure inflationary one. And since over the long run different disturbances may be dominant, one would expect the pattern of the relationship between stock prices and exchange rates to be unstable and insignificant over the long run. This logic was one of the arguments in support of the introduction of the Euro currency. It was argued for example, that adoption of a single currency in Europe would create more stable prices and lower interest rates by eliminating foreign exchange risk between the

EMU countries. It was anticipated that institutions in public and private sectors would reduce dollar-denominated investments and reallocate to Euro-based assets. This reallocation was expected to lead to stronger performance in equity markets in the EMU countries.

This paper provides an empirical analysis of the relationship between the Euro and equity prices in Euro-Zone countries. We test our hypothesis that this relationship is not significant. The contribution of this research to financial and economic analysis is based on evidence reported here contrary to the views that the movements in the international value of the domestic currency and domestic stock prices are strongly correlated.

METHODOLOGY AND EMPIRICAL RESULTS

The theoretical framework of this paper is based on a U.S. study by Farsio, Goodwin, and Willett (Farsio, Goodwin & Willett, 1992), and another international study by Fazel and Farsio (Fazel & Farsio, 1993). Both studies showed that neither a strong positive nor a strong negative relationship between movements in the international value of the domestic currency and domestic equity market had persisted over the 1973-1992 period. These studies also demonstrated that the correlation between movements in the domestic currency and the domestic stock market was likely to be related to the correlation between domestic interest rates and the international value of the domestic currency, and therefore dependent on the predominant cause of movements in nominal interest rates. In the above studies, the patterns of relationships between exchange rates and equity prices were analyzed in light of the real component versus the expected inflation component of nominal interest rates. If for example the dominant exogenous disturbance is a rise (fall) in the real interest rate, one would expect stock prices to fall (rise) since (according to finance theory) there is an inverse relationship between stock prices and the real discount rate. Meanwhile, according to exchange rate theory, a rise (fall) in the real rate of interest would cause an appreciation (depreciation) of the domestic currency since it would induce an increase (decrease) in the demand for the domestic currency. Therefore, under a real

interest rate disturbance, one should expect to find a negative relationship between the value of the domestic currency and domestic stock prices.

On the other hand, if the dominant exogenous disturbance is a rise (fall) in the expected inflation, we should expect a fall (rise) in both stock prices and the domestic currency, and therefore a positive relationship between the domestic currency and equity prices. This is because higher expected inflation would lower real after tax profits, and hence lead to lower stock prices. Meanwhile it is obvious that higher inflation and lower purchasing power would lead to lower international value of the domestic currency. Consequently, the patterns of the exchange rate/ stock prices correlations should be dependent on the predominant cause of changes in nominal interest rates, and therefore unstable over a substantial period of time.

In this paper, we apply the above analysis to the Euro/equity prices in the Euro-Zone countries. Our hypothesis is that the slope of the Euro/equity prices relationship in Euro Zone countries should be insignificant. To perform our empirical analysis, we estimate the following simple regression model:

$$\Delta \ln S_t = a + b \Delta \ln E_t + U_t \quad (1)$$

Where:

S_t = Level of stock market index in Euro Zone countries at time t

b = Slope coefficient between stock prices in Euro Zone countries and the Euro

E_t = Level of Euro at time t

a = Intercept

U_t = Error term at time t

The Euro Zone countries include Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, and Greece. Stock prices in Euro Zone countries are measured by the Broad Euro Zone 600 index, which includes the average stock prices for the 600 largest

companies in the 12 countries that comprise the Euro Zone. The value of Euro (E_t) is measured by the level of \$/Euro. Based on this definition, a rising E_t implies an appreciation of the Euro against the Dollar. Daily time series data for the Euro are obtained from www.Fxsolution.com and for Euro Zone stock index are obtained from www.Stoxx.com. Our sample covers January 1, 2002 through August 9, 2002. We selected January 1, 2002, as the starting point of our data since that is the date (the E-day) when Euro Zone countries began trading in the new European cross-border currency of the Euro. On that date, Euro bank notes and coins began circulating in the Euro Zone countries. The ending date for our data is based on unavailability of data beyond August 9, 2002. We divided our sample into two sub-periods: January 1, 1999 through December 31, 2001, and January 1, 2002 through August 9, 2002. The objective was to detect any disparity in the pattern of the relationship before and after the E-day. Based on our hypothesis, we expect the b coefficient to be insignificant across the two sub-periods and over the entire sample period.

Table 1 presents the estimates for the slope coefficient, b , over the three time periods. All OLS estimates are insignificant at the 5% confidence level. Instability in the Euro/equity prices relationship is evident before and after the E-day, as well as for the entire period since the Euro became the single currency in 11 European countries. The right-hand sides of Table 1 present the regression results with the serial correlation corrected. Again, for all periods under study, the relationship seems to be weak and unstable.

Simple regressions across the three time periods were found to reveal an insignificant relationship between the international value of the Euro and equity prices in the Euro Zone countries. As we have described in this paper, this observed insignificant relationship may be due to the existence of two exogenous disturbances; real interest rate disturbance, and inflationary disturbance. While a real interest rate disturbance would cause a negative relationship between the Euro and equity prices, an inflationary disturbance could cause a positive relationship. The existence of both exogenous variables may therefore cause an insignificant correlation between these variables.

CONCLUDING REMARKS

The objective of this study was to examine empirically the relationship between the Euro and equity prices in Euro Zone countries. We found that Euro and equity prices in the Euro zone countries are not correlated. The contribution of this study is that it provides to financial managers and forecasters evidence on the correlation between endogenous variables such as Euro and stock prices in the new era of Euro zone economies. We have provided additional evidence contrary to the perception of a stable correlation between exchange rates and stock prices. Our findings are important for financial decision making, since they support the view that it is a mistake to base the analysis on correlations among endogenous variables such as stock prices and exchange rates without identifying the underlying exogenous disturbances.

Table 1: $\Delta \text{Ln}S_t = a + b \Delta \text{Ln}E_t$							
(Euro Zone Countries)				With AR(1) Correction			
Period	b	DW	N	b	DW	N	ρ
1999, Jan 1-2001, Dec 31	-.15 (-.43)	1.15	1095	-.37 (-.56)	1.80	1094	.23 (1.43)
2002, Jan 1-2002, Aug 9	-.05 (-.63)	1.27	221	-.09 (-.71)	1.94	220	.19 (1.26)
1999, Jan 1-2002, Aug 9	-.14 (-.51)	1.22	1316	-.23 (-.61)	1.88	1315	.27 (1.97)

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