PRICE TRANSMISSION AND THE GLOBALIZATION OF STOCK MARKETS: EVIDENCE FROM FIVE COUNTRIES

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The contemporary world is dominated by the idea of globalization and there is evidence on this in many aspects of our lives. In some way, it seems clear that the world became much more interrelated and even much more uniform than it was in the past not so far. Of course, there still remain important exceptions but if we look at the western world we can see that differences between countries and markets are progressively mitigated.

Several studies conducted in the field of economics have shown that markets are nowadays much more integrated than they were in the past, both at the horizontal and vertical levels ([1], [2], [3], [4], [5]). This is true, at least in Western Europe, for some commodity markets but it also seems to be applied to some financial markets. However, can we extend this notion to the stock markets? Many authors have studied the process of globalization of international stock markets and, invariably, they point to the conclusion that stock markets are highly "globalized" ([6], [7], [8], [9], [10]). This is intuitively appealing since it is well known that shocks occurred in major markets such as, for instance, the NYSE have a strong impact on the behavior of worldwide stock markets. However, it is quite surprising that many studies do not in general rely on a concrete definition of market globalization. They basically assess stock market globalization by observing the extent of correlation between markets but no theory lies behind these empirical tests ([11], [12]).

Bearing these caveats in mind, this paper analyses the process of stock market globalization on the basis of a theoretical framework derived from the price theory. A precise definition of market globalization based on the Law of One Price leads to a dynamic model specification where the long-run and the short-run effects can be clearly separated. This error correction mechanism uses daily prices and price changes for five stock market indexes (SP500, NIKKEI100, FTSE100, IBEX35 and PSI20) over the period from January, 4th 1999 to January, 24th 2007, totalizing 2103 observations. It also uses daily exchange rates for the relevant currencies (EURO-DOLLAR, EURO-YEN and EURO-POUND). The model specification is quite flexible and allows for different impacts of price and exchange rate movements across markets. For example, a change in the SP500, the dominant market, may be transmitted in quite different manners to the remaining markets, in which case it is difficult to conclude that markets tend to uniformity. The process of market globalization is, therefore, a complex one, and the nonlinear transmission of price movements may obscure the general idea of stock market globalization.

Stock prices are preferable to use in this context than stock returns since the former retain the long-run information contained in the original data while the latter only capture the short-run one. However, some technical problems arise in this context because the nonstationary nature of price data may lead to spurious relationships ([13]). These problems are overcome if the price series are cointegrated in which case the error correction model provides an appropriate representation of the whole system ([14], [15]). In addition, formal tests of proportionality and weak exogeneity can be performed on the basis of the error correction model. The former leads to tests of full

exchange rate pass through (linear or nonlinear) and full price transmission (linear). The latter allows one to test for market leadership.

The results show that the five stock markets under analysis are cointegrated and there is just one cointegrating vector that rules the long-run relationship between these markets. The SP500 is clearly exogenous and the PSI20 is clearly endogenous in this system. For other markets, the evidence is mixed. Full exchange rate pass through for the relevant relationships is only rejected for SP500–PSI20–EURODOLLAR. On the other hand, full price transmission is only accepted for PSI20–NIKKEI100–EUROYEN. The results, therefore, show that price movements between stock markets are highly nonlinear and complex which renders difficult to say that stock markets are integrated in the sense of the Law of One Price. Nonlinear movements must, therefore, be examined in a different atmosphere.

Keywords
Globalization, market integration, error correction model, nonstationarity, cointegration

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