The Impact of Integration on EU Stock Markets: Country and Sector Effects

Non-Technical Report

GIKAS HARDOUVELIS

Economic office of the Prime Minister, Greece

University of Piraeus, Greece

CEPR

DIMITRIOS MALLIAROPULOS

University of Piraeus, Greece

National Bank of Greece, Greece

RICHARD PRIESTLEY

Depratment of Financial Economic

Norwegian School of Management

Sandvika

N1032 Norway

Tel: +47 67557104, Fax: +47 67557675

E-mail: richard.priestley@bi.no

1 Introduction

For many investors a major obstacle to wider cross border equity investments is the existence of various restrictions which limit ownership of foreign assets. For example, currency matching rules or general restrictions with respect to weights placed on foreign assets affect both pension funds and life assurance companies. However, the introduction of the euro eliminates such restrictions for member countries. Therefore, we would expect that this should lead to an increase in cross border equity ownership.

Preliminary evidence reports large shifts in portfolio holdings of single currency member countries away from domestic assets to foreign assets. As this effect takes place, risk sharing among member countries should increase and equity markets become more integrated. Theoretically, this should lead to a reduction in the cost of equity capital since higher risk, country specific, factors should become less important in the pricing of investments and lower risk, EU wide, factors become more important. An additional effect, apart from the reduction in the cost of capital, should be that the cost of capital of the same sector across different countries should converge as local factors are eliminated.

Given the above, the advent of the single currency has important implications for corporate managers, investors, regulators and politicians. For corporate managers the effects of a lower cost of capital will be felt on their physical investment policies. Furthermore, cross border convergence in the cost of capital will effect corporate policy regarding cross listings and mergers and acquisitions. With respect to investors, convergence across sectors in the cost of capital signifies that country effects may be gradually disappearing and sector effects may become more prominent. A consequence of this would be a rebalancing of equity portfolios from the typical cross-country mandates to cross-sectoral mandates. For regulators and politicians, a falling cost of capital indicates higher national wealth. Therefore, for those regulators and politicians who are considering membership of the single currency, this issue is of substantive importance.

This project aims to assess empirically how the single currency has effected the cost of equity capital through its effect on the integration of EU stock markets.

2 Empirical Framework

A firm's cost of equity capital is a function of the risk free rate of return and the equity market risk premium. Throughout the latter part of the 1990s there was convergence in risk free rates across the EU countries and since January 1999 there is one common short term interest rate in the euro area. Thus, one effect of the introduction of the single currency was to reduce the cost of equity capital through a reduction in risk free rates.

The focus of the project is to measure the effect that the single currency has had on the equity market premium. Unlike examining the risk free rate, examining the effect on the equity market risk premium is more difficult because it requires that we specify a model of the equity market premium. The difficulty arises in specifying the extent of integration in the EU stock markets before and after the introduction of the single currency. Moreover it is possible that the level of integration changes over time, since convergence was a smooth process rather than a one-off event.

We take a standard asset pricing model (the CAPM) as a benchmark for calculating a firm's equity premium. We then analyse how a change in the level of integration effects the firm's equity premium. We model changes in the level of integration by a proxy for the probability of a country joining the single currency. As the probability of joining the single currency increases, markets become more integrated since investors should begin to hold portfolios that contain more foreign assets. An advantage of our methodology is that it allows for gradual changes in integration over time. As this process takes place, EU wide factors become more important and local factors become less important in pricing stocks. Given that covariances with EU wide risk factors are generally smaller than covariances with local risk factors, the firm's cost of capital should fall as integration takes place. Hence, we investigate whether stock market integration has led to a reduction in the equity premium of European firms.

Furthermore, as the local factors become less important, the cost of capital in the same sector across different countries should converge. We also examine whether the cost of capital across countries and within a country converges.

3 Findings

Our findings contribute to the existing literature in a number of ways. First, we document that, through the 1990s, the equity premium in the EU falls gradually as integration increases. The decrease in the equity premium is considerable and statistically significant, ranging from an average cumulative effect of 3% in the resources sector to 0.5% in the financial sector. This pattern is observed in all sectors except the IT sector where an increase in the cost of equity is observed, although it is not statistically significant (there is also a very small but statistically insignificant increase in the cyclical consumer goods sector). This is an interesting result and reflects the fact that IT is very international with EU market risk dominating local market risk throughout the period of analysis.

Second, we also document that across countries there has been a decrease in the cost of equity of between 3.6% and 0.54%. An exception here is Germany where the cost of equity has actually risen. This is due to the fact that the German equity premium is lower than the EU equity premium and, consequently, shifting to EU wide pricing raises the cost of equity on average. However, abstracting from the IT sector, the average increase in the cost of equity across all other sectors in Germany is small and statistically insignificant.

Third, we find statistical evidence that the equity premium within a sector is converging across EU countries in the sense that its dispersion is decreasing over time. The decrease in dispersion in the same sector across countries is considerable and ranges between 10 and 30% per year. The equity premium is also converging across all sectors in all countries, however, this effect is small (around 4% per year). We find little evidence that the equity premium has converged within a country. The evidence regarding the convergence in sector equity premiums indicates that country effects are becoming less important as markets become more integrated and sector effects more important. This has important investment implications.

4 Summary and Conclusions

Increasing stock market integration has led to a significant reduction in the cost of equity in all EU sectors except the IT and cyclical consumer goods sector. At the country level there is also a significant fall in the cost of equity in all countries but Germany. This should lead to more profitable investment opportunities and to an increase in the net present values of existing projects. Thus, the introduction of the single currency and its effect on the cost of equity capital can be thought of as welfare enhancing.

As integration increases and returns are increasingly a function of global relative to local risk factors, there is a convergence in the cost of equity capital in a particular sector across different countries. Convergence in the cost of capital of different sectors is much less pronounced and reflects the differences in global sector betas. This result has potentially far-reaching implications for portfolio management: differences between sectors seem to remain whilst differences between countries seem to be disappearing. Therefore, a fruitful avenue for future research is the role of country and sector effects in portfolio management.