European Corporate Involvement in the Americas' Impact on Capital Market and Currency Union Integration in Europe

The purpose of this study is to provide a contribution to the analysis of foreign cross-listing behaviour in general, and on the state of the integration of the European region's capital markets and economies in specific; while also examining the market preferences of European firms in the Americas and around the world in the context of their integration within the Americas. A logistic regression model is developed which takes into consideration exchange, firm, geographic, and industrial regressors in order to determine whether firms prefer listing on which American stock exchange. Unit-root causality tests and ARCH regressions are run on the economic specific characteristics of the European economies to analyse currency union and finance market integration possibilities. It seems as if the European governments utilise the global financial markets quite efficiently, as the amount of entities they have is relatively equal to the number of issuances. The European governments do look to their home exchanges first for their financing needs, then to the regional European markets, and then to the world markets, thus suggesting that the European governments utilise the financial markets efficiently.

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Disclosure Statement

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1. Introduction

The European countries are arguably the most integrated in the world. There are many different countries in Europe, all with long histories, which has led to relatively consistent development of their individual economies. Even though Europe is the most financially integrated region in the world, it still has discernable parts. The Euro area comprises most of mainland Europe, yet the European Union includes more countries, and then there are other countries still within the greater European community. Currency integration has of course begun on some level with the introduction of the Euro, though what is sometimes overlooked is that European capital markets are also the most integrated in the world. The EuroNext comprises Belgium, France, the Netherlands, and Portugal, while the Nordic includes Denmark, Finland, Iceland, and Sweden. As such, Europe is the most integrated region in the world, and in the following study the efficiency of the current state in Europe is examined, as well as possibilities for the future, all in consideration of European corporate involvement in the Americas. For example, the NYSE and the Nasdaq both own the two most integrated European stock exchanges, the EuroNext and the Nordic, which, due to the corporate nature of some stock exchanges today[1], is a clear example of corporate activity from the American region directly shaping the financial appearance of the European continent.

Integration involves a trade-off between welfare gains and contagion consequences. As such, it is not desirable to have complete integration where everyone uses the same currency and everyone's stock exchange is combined into the same entity. Even with the Nordic countries, it may be to their benefit for Norway to remain separate from the other Nordic exchanges, as well as for the countries to use their own currencies, yet it may be best for mainland Europe to have the same currency yet maintain distinct

[1] Some countries maintain national control over the capital markets more firmly than others.

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exchanges. These are decisions that have to be made by the participants, and are like most economic issues in that there is no right answer, while many political issues to cater to. Above the political concerns, however, the economic welfare of the working class is the most important, and so these decisions should be made in regard with the socialist aspect of the policies. Contagion is usually defined as correlation between markets in excess of what would be implied by economic fundamentals, though there is considerable disagreement regarding the definitions of the fundamentals, how the fundamentals might differ across countries, and the mechanisms that link the fundamentals to asset returns (Bekaert et. al., 2002). And so, it becomes difficult to gauge how much welfare gain is acceptable to strive for while simultaneously recognising the contagion risk, and thus research into the integration literature almost becomes a continuously evolving field.

The two most distinguishing aspects of Europe are their currency union integration and capital market convergence. The theoretical rationales for these types of arrangements are presented, and then empirical analyses on the European currency arrangement and the European stock exchanges are examined in relation to European corporate involvement in the Americas. First, however, a review of some of the interdependencies between Europe and the Americas is examined, so as to provide some clarity as to how exactly European corporate involvement in the Americas may be driving currency and capital market integration on the European continent. What is additionally fascinating about currency and capital market integration, is that often times they directly influence each other. Integration should accelerate the development of the most backward financial markets, and allow companies from these countries to access more sophisticated credit and security markets. Financial integration will usually have a 'growth dividend' in the region it is connecting, and this growth dividend can be quantified by analysing the relationship between financial market development and growth via the country, market, and firm characteristics, and then gauging how it will distribute itself across countries and sectors

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(Georgiou, 2010).

This study is organised into several sections as follows. As the emphasis of the study is on how the Europe region's corporate activity in the Americas may be affecting their capital market integration and currency union convergence, first the Europe region's integration with the American markets is analysed. The Europe region is characterised by its capital market integration and currency union convergence, and as such the efficacy of this type of system is discussed next, after which the current state of the European markets is presented, and then the empirical studies are performed. For the empirical studies, the corporate activity of the Europe region's countries in the American stock markets is cross-sectionally analysed, and then the time series characteristics of the Europe region's stock markets and economies are examined, all in an effort to deduce stock market and currency union integration possibilities in the Europe region, with an emphasis on how their corporate activity in the Americas may be affecting their welfare within the region.

European corporate involvement in the Americas has been very active, more so than any other region. As such, the extent to which European corporate involvement in the Americas is influencing European financial structure on the mainland is examined in this study. The Europe region discussion analyses three primary hypotheses. Do certain European countries exhibit more preference for the Americas than others, and if so, which American markets do their corporations prefer? How do these countries preferences differ according to region, and according to whether or not they are in the Euro-Zone, Euro-Next, or Nordic, and what of the other countries that could join one of these three groups? Has there been a change in European involvement in the Americas since the introduction of the Euro? If so, what is behaviour of the Euro-Zone countries, and what of the other countries that are either integrated into common stock markets, or could be integrated into common stock markets or a common currency?

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Is there a discernable time series trend, in terms of unit roots and significant variables, in the stock markets and economies of the European countries? If so, do these trends correlate to region, and do they mirror the affiliations we see today in the Euro-Zone, Euro-Next, and Nordic exchanges.

1.1 Europe and the Americas

The primary focus of this study concerns how European corporate involvement in the Americas influences capital market and currency union integration in Europe. In general, it would commonly be assumed that the USA likely has a greater corporate presence, or international corporate ownership, in other countries than other countries do in the USA. What is equally certain, is that the countries where the USA is most represented will likely have a similarly significant presence in the USA. This literature can thus be divided into 3 groups: that on currency effects, that on capital markets effects, and that where they both affect each other. It is important to remember that a country is essentially a currency union itself, through the different regions in the country, thus arguably making the USA the most efficient currency union in the world. As such, a review of the literature on the state of the integration of the European and American capital markets and economies can shed light on the veracity of this study.

Inflation rates across regions in the European Monetary Union are at least as large as they are across the North American markets of Canada and the USA, suggesting the same factors may be at work in both Europe and the Americas (Beck and Weber, 2005). In studies analysing the relative importance of country and industry effects in international stock returns within the three primary regions of the Americas, Asia, and Europe, only in Europe has segmentation declined, while it has increased elsewhere, suggesting that Europe may be ripe for analysis. As well, Europe is also the only region

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where industry effects are now more important than country effects, and most of the variation explained by country effects is actually due to regional effects, though the region effects have fallen over time (Brooks and Del Negro, 2002). This suggests that looking at industry or corporate activity from a European perspective may be helpful in analysing financial and economic effects within Europe. Additionally, breaking the empirical studies into regional perspectives may also help shed light on currency union and capital market integration in Europe. Wojcik (2002) notes that the level of foreign ownership in the major European countries is significant, though spread unevenly, with USA financial institutions controlling the majority of foreign stakes. The significance of USA corporations in Europe suggests that European corporations may be as represented in the Americas, they may be dependent on each other to a degree, and thus the European corporations in the USA may be affecting financial integration in Europe in a direct or indirect manner similar to the way the USA corporations in Europe do for America.

The factors influencing currency union convergence are typically more macroeconomical in nature, whereas the factors influencing capital market convergence are usually more quantitatively financial in nature. The factors influencing currency union convergence are typically more macroeconomical in nature, such as labour mobility, exchange rates, asset prices, and inflation rates. Inter-regional labour mobility appears to be a much more important adjustment mechanism in the United States, which has a more integrated labour market than the EU and thus better labour market adjustment (Bayoumi and Prasad, 1995). Eichengreen (1991) concurs, and suggests that labour mobility and the speed of labour market adjustment remain lower in Europe than in the United States, and thus, Europe remains further than the currency unions of North America from the ideal of an optimum currency area. He then compares European, USA, and Canadian real exchange rates, a standard measure of the extent of asymmetrical disturbances, which remain considerably more variable in Europe than within the United

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States, while real securities prices, a measure of the incentive to reallocate productive capital across regions, appear considerably more variable between Paris and Dusseldorf than between Toronto and Montreal.

The factors influencing capital market convergence are usually more quantitatively financial in nature, such as time spreads in information transmission or volatility linkages in trading of financial products. Cerny's (2004) study determined that European markets react very quickly to the information revealed in the prices on other European and USA markets, and in all cases the reaction occurs as soon as within 1 hour. The USA markets seem to be an important source of information for the markets in London and Frankfurt, which react within 30 minutes, with the first reaction occurring within 5 minutes. Information transmission between the London market and any of the two continental markets in Paris or Frankfurt appears to be relatively unimportant compared to the information transmission between the two continental markets. The stock market in Paris seems to react to the information revealed at the stock market in Frankfurt with a delay of 40 minutes to 1 hour. The two relatively small Eastern European markets in Warsaw and Prague are found to react to the information revealed in the stock market prices in Frankfurt, with the market reaction in Prague (30 minutes) occurring 30 minutes faster than the market reaction in Warsaw (1 hour). In terms of volatility linkages between the American and European capital markets, there are identifiable country jumps in risk spillover during volatile periods in the European equity markets from the USA and European regional markets, though the USA contribution to the country variances is less than the contribution from the European regional markets. This implies that a USA investor does not gain much from diversification abroad in high volatility periods, though for European investors the relative benefit of the international diversification increases in the high volatility periods (Asgharian and Nossman, 2008). Thus, the stock exchanges in the USA and Europe seem to follow each other to some degree, and the mainland European markets may even

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react differently than the British Isles markets, which is why the UK is analysed in depth in the empirical section.

Considering the often times mutually dependent nature of currency union convergence and capital market integration, there will usually be correlations between currency union members and capital markets. On this note, there is a documented long-run convergence between USA, UK and major European stock markets, and while real short-run diversification gains may occur, they tend to be short-lived. USA and UK markets are relatively less bound to a common trend, which would imply that increased stock market merger activity, and any transition to the European common currency by the UK, may lead to relatively large capital market adjustments as markets adapt to these institutional changes (Fraser and Oyefeso, 2005). Thus, this data suggests that similar forces may be influencing European and American financial markets and also may be present in European corporate involvement in the Americas, as well as information about UK capital markets suggests that they may not integrate well into a currency union with the Euro-Zone.

2. Currency Union Theory

The most distinguishing aspect of the European region is their currency union and capital market convergence. Currency union theory analyses more secondary data, which by nature means that theoretical assumptions will usually provide better explanations; this is in contrast to capital market convergence theory, which utilises primary data and focuses on country and market specific aspects. What we are seeing today, is that along with the globalisation of trade and finance and internationalisation of production and exchange, there has come a certain globalisation of money. Some countries have adopted currency unions and currency boards, while others increasingly use international currencies in place of national monies (Starr, 2006). As such, the global integration of

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these newfound currency markets reaches its apex with the creation of multiple international currency unions, such as the Euro-Zone. Further, as perfect integration is not easily achieved, these regions must pursue the optimal regional and sectoral integration of financial systems (Fecht and Gruner, 2005). This optimal mix for each region can be determined by relating traditional currency union theory to the specific characteristics of that region, which is done so in this study for the European region. Some of the general concerns that arise when discussing currency unions are: general optimum currency area theory, effects of electronic transmission, and entering and exiting currency unions. Factors influencing currency union convergence and ways to measure it include: traditional macroeconomic monetary stabilisation policy indicators, and the factors of production of trade characteristics and labour issues. There are many ways to measure currency union convergence, such as with: GDP, interest rates, inflation rates, debt, or really any measure one hypothesis is relevant to that group of countries. The most cited world regions that currently function as currency unions comprising independent countries include: the Euro-Zone, Franc areas, Dollar areas, and Pound Sterling zones.

When discussing currency union theory, it is helpful to first delineate what is meant by a currency union, to which some people may refer to as an optimum currency area. Eichengreen (1991) defines an optimum currency area as an economic unit composed of regions symmetrically affected by disturbances, and between which labour and other factors of production flow freely. Consequently, the symmetrical nature of disturbances and the high degree of factor mobility make it optimal to forsake nominal exchange rate changes as an instrument of adjustment, and to reap the reduction in transaction costs associated with a common currency. Additionally, McCallum (1999) states that the optimal currency area concept is central to the economic analysis of currency unions, as it clearly identifies the relevant optimising tradeoff: that extension of the area over which a single currency is used enhances allocative efficiency, though at the same time reduces the possibility of tailoring monetary stabilisation

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policy to the needs of different areas. Mongelli (2002) discusses this tradeoff, and suggests that optimum currency areas actually generate fewer costs in terms of the loss of autonomy of domestic macroeconomic policies, in relation to efficiency-benefits gained. As well, and similar to the dilemma faced by an independent country, once an optimal currency area has been established and its benefits deduced, the argument may then proceed about the best way to benefit from it, such as with attempting to specialise from certain a certain country's strengths, or to proceed with a more homogenous endogenous plan considering the interests equally of all countries; what equally is relevant is are all countries given equal consideration, is consideration based on population, or is consideration based on the economically dominant countries.

3. Capital Market Integration Rationale

The most distinguishing aspect of the European region is their currency union and capital market convergence. Capital market convergence theory utilises primary data and focuses on country and market specific aspects, which means that empirical analysis can provide the most useful insights; this is in contrast to currency union theory which analyses more secondary data, that by nature means that theoretical assumptions will usually provide better explanations. Buettner and Hayo (2009) agree with this assessment, as they note that many of the factors which are very influential in currency union convergence, such as interest rate spreads and business cycle synchronisation, do not appear to play an important role in explaining equity market integration. As such, capital market integration theory is essentially a business decision, with much less political overtones and concerns that a currency union.

Yes, stock exchanges are symbols of national pride, and arguably should be more tightly controlled by the home country than they sometimes are; though, what is equally true is that stock exchanges are oftentimes publicly traded themselves, and so merging stock exchanges often amounts to little more

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than securing the financing required to complete the deal. There are many ways to measure capital market integration, such as with: market capitalisation, trading volume, capital raised, or really any aspect of the markets one supposes is relevant. Again, these are all primary sources of data. This primary aspect of the data is also what makes capital market integration much more straightforward than currency union convergence, which is based wholly on secondary data, as well as much more consequential political and security concerns. What is equally true, however, is that at the national scale, currency unions are much more common than capital market convergence, as evidence by the fact that capital markets had not converged until 2000, while currency unions have been active for the last 100 years.

In terms of the pure theory of, mergers and acquisitions between stock exchanges will first begin at the national level, with the local stock exchanges in a country accepting the merger between them in order to create a capital market significant at a national level. The next step is integration at the national level, with the intent on becoming a relevant stock exchange on a global scale. A few of the more important aspects to consider when analysing capital market integration are: country ownership issues, foreign ownership, liberalisation and informational efficiency, data analysis, and overall economic growth.

4. European Markets Today

Many would assume that the European markets provide the primary government financing centre for the world, the American markets provide the primary corporate financing centre, and the Asian-Pacific markets utilise both. That said, the most distinguishing aspect of the European region is not their government financing activity, rather their well-documented currency union and capital market convergence. A distinguishing aspect of Europe is that there are discernable current attributes of both

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their capital markets and their currency markets. For example, an analysis of the Asia~Pacific or the American regions' current state would only be able to examine their capital markets, whereas in Europe the Euro currency is a distinguishing attribute of their markets as well.

The European markets today are essentially characterised quite well by the preceding two sections, specifically with their emphasis on the EMU and the characteristics of the European stock markets. As Georgiou (2010) writes, the diversity in the current degree of financial development across the EU can be a great opportunity at a time where this area is poised to become increasingly financially integrated. Europe is characterised by a diverse collection of cultures and a deep history, as well has a reputation for being a leader in cross-border market listing and integration.

As diverse as Europe is today, it is important to acknowledge that the Euro-Zone is not the first currency union in Europe. Within any country, there will be a move to integrate the regional markets to a national market. In Italy, this occurred in 1862, though the prices of the Rendita Italiana 5% (Italian Consols) across regional stock exchanges did not fully converge until 1887, twenty five years after the creation of a currency union in the Italian peninsula (Conte et. al., 2003). As we still see happening today, even then the markets remained relatively fragmented for a period of time because local vested interests resisted the legal and regulatory changes needed to make arbitrage across individual stock exchanges efficient, and thus a single Italian financial market appeared only when the State imposed more uniform financial market legislation nationwide. As for cross-country currency unions, one early example is the Habsburg Monarchy, which was not only a customs union and a single market with well developed trade, capital, and service relations; it was also a currency union with a joint national bank and a joint currency policy (Nautz, 2000).

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Europe has traditionally been an area of political upheaval and regime change, which of course has occurred recently with the break up of the Soviet Union. For example, in 1993 Czechoslovakia experienced a two-step break-up on January 1: the country disintegrated as a political union, while preserving an economic and currency union, then the Czech-Slovak currency union collapsed on February 8. This created a situation where the Czech and Slovak economies were vulnerable to asymmetric economic shocks, such as those induced by the economic transition, and the stability of Czechoslovakia was undermined by low correlation of permanent output shocks, low labour mobility and higher concentration of heavy and military industries in Slovakia (Fidrmuc et. al., 1999), though they both have done well to this day.

In Europe, it is quite common for companies to cross-list their stock onto other exchanges. For cross-listed European stocks, narrower spreads and more competitive liquidity provision during overlapping trading hours reflect a significant impact from the availability of more substitutes in addition to the enhanced information environment and liquidity externalities when home markets are open (Moutlon and Wei, 2009). When studying the Paris stock exchange, Athanasios et al. (2004) identified information spillover effects for cross-listed equities, and consequently that different regulatory environments have a significant impact on information spillovers. As such, volatility transmissions from a foreign listing in lax regulatory environments appear to be more important for spillovers to home equity cross-listings in the case of the French stock exchange.

The Euro-Zone and EMU may be perhaps the most distinguishable characteristic of the European markets today. The Euro has brought substantial growth to the area, though the challenge for EMU macropolicies lies in their potential to achieve full employment and low inflation in the euro system (Arestis and Sawyer, 2002). The euro has brought together countries of course, as well as sped up the

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process of capital market integration, though there are still certain capital markets which have not fully caught up, which would be expected, as the entire capital market will not all merge together perfectly at the same time. Some observations that have been made going forward include: the German-dominated futures and the underlying cash market, the vulnerability of the cash markets' prices to free-riding and manipulation by large financial institutions, the possibility of joint bond issuance by Euro-area countries, the integration of clearing and settlement systems in the Euro-area bond market, and the participation of new accession countries' issuers to this market (Pagano and Von Thadden, 2004). Further, the enlargement of a currency union by, for example, extending the common interbank market might increase the benefits of also integrating retail banking markets through cross-border transactions or bank mergers (Fecht et al., 2007).

Euro countries were divided into two stable groups of financially more closely integrated countries in the pre-EMU period, and geographic proximity and country size might have played a role, though this situation has changed remarkably with the Euro's introduction, though the introduction of the EMU has led to a shake-up both in the number and composition of groups. Financial integration can be seen to occur in stages, and as such there exist maximum similarity barriers in financial integration, and it takes extraordinary events, such as the EMU, to push the degree of financial integration beyond these barriers, and thus the substantial differences between the current and potentially new euro states can be overcome (Kiehlborn and Mietzner, 2004). As well, the introduction of the euro also highlighted the shortcomings of existing institutional structures, and identified areas where excessive focus on narrowly defined interests may stand in the way of realising the full potential benefits from the new environment. Diverging legal and institutional infrastructures and market practices can impede further financial market development and deepening; hence, the euro has put a premium on cooperation between national authorities and institutions as a means of achieving a more harmonised financial

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environment (Galati and Tsatsaronis, 2001).

In addition to bringing together countries and political issues, the Euro has of course created significant capital market integration, though not in all areas. Lower barriers to cross-border financial transactions have also increased the contestability of the market for financial services, be it at the wholesale or the retail level, though the range of financial products available or terms attached thereto differ substantially across euro area countries. Fecht and Gruner (2005) note that only interbank money markets display full integration. Vajanne (2007) agrees that the degree of integration varies greatly depending on market segment, as retail banking markets are generally seen to be much less integrated than other segments of financial markets, and most consumers still use domestic banks for their retail banking needs. Interest rate convergence is happening, though cross-border risk sharing amongst the financial institutions is still a concern, and Galati and Tsatsaronis (2001) also write that the impact of EMU on depth in foreign exchange markets has been less clear-cut, as volatility, spreads, trading volumes and liquidity appear not to have changed in a substantial way.

The markets for Euro-area sovereign and private-sector bonds have become increasingly integrated, as on the lender side, banks and investors in fixed income markets have become more focused on the characteristics of individual borrowers rather than the nationality of the issuer, while on the borrower side, the EMU has increased the attractiveness of market-based financing methods by allowing debt issuers to tap institutional portfolios across the euro area (Galati and Tsatsaronis, 2001). Issuers and investors alike have come to regard the Euro-area bond market as a single one, and primary and secondary bond markets have become increasingly integrated on a pan-European scale, as well as issuance of corporate bonds has taken off on an unprecedented scale in continental Europe. Both investors and issuers have reaped the considerable benefits afforded by greater competition in the

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underwriting of private bonds and auctioning of public ones, and by the greater liquidity of secondary markets, as bond yields have converged dramatically in the transition to EMU. The persistence of small and variable yield differentials for sovereign debt under EMU, however, indicates that Euro-area bonds are still not perfect substitutes, although to a large extent this does not reflect persistent market segmentation but rather small differentials in fundamental risk. Further, liquidity differences play at most a minor role, and this role appears to arise partly from their interaction with fundamental risk (Galati and Tsatsaronis, 2001).

The European stock exchanges are also among the most integrated in the world. In performing integration tests to measure European equity markets integration, Mongelli (2002) notes that European financial markets have been highly integrated over the last 5 years, though being a member of the EMU is not sufficient to be integrated to the European capital markets. In his study on the major European stock exchanges, Fratzscher (2001) finds a value premium is pervasive, existence of a size, and to a lesser extent, a momentum effect in the major European stock exchanges. Using an uncovered interest rate parity condition to measure financial integration, he finds that European equity markets have become highly integrated only since 1996. The Euro area market has gained considerably in importance in world financial markets and has taken over from the US as the dominant market in Europe. The integration of European equity markets is in large part explained by the drive towards EMU, and in particular the elimination of exchange rate volatility and uncertainty in the process of currency unification (Fratzscher, 2001). Additionally, European equity markets seem to have been affected by the enhanced ability of investors to build strategies with a pan-European perspective as prices increasingly reflected risk factors specific to industrial sectors rather than individual countries since the introduction of the Euro.

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There is a delicate relationship between the government and the financial markets. The financial markets should ideally be heavily regulated by the national government, so as to ensure foreign institutions are not over-infiltrating the domestic economy. **Table XII**. suggests that the European stock markets have a healthy amount of foreign corporations on them, with the UK and Luxembourg hosting the most foreign firms; **Table XIII.** also shows that there have been relatively few delistings of foreign corporations from European stock exchanges, thus confirming the preceeding observation. The governments, however, also must utilise the financial markets from time to time for their own business needs. It is preferable for a government to use their own domestic markets for their financing needs, though when those are not sufficient, they may feel the need to utilise other countries' capital markets as well. Therefore, when discussing capital market integration in the European region, understanding if the region's governments do utilise foreign exchanges is important, as is knowing the markets in the region that other countries prefer for their government financing needs.

The activity of European governments on other world stock exchanges can shed light on what creates their government cross-listing needs within Europe, as theory suggests that the government will first utilise their domestic capital markets, then their region's capital markets, and then the world's capital markets. **Table XIV.** shows that European governments prefer the four primary European exchanges that all countries prefer for their foreign financing needs.: Frankfurt, Luxembourg, London, and Switzerland. **Table XV.** describes how the European governments are interacting in the global financial markets, and accordingly, it seems as if the European governments utilise the global financial markets quite efficiently, as the amount of entities they have is relatively equal to the number of issuances. The European governments do look to their home exchanges first for their financing needs, then to the regional European markets, and then to the world markets, thus suggesting that the European governments utilise the financial markets efficiently. As shown in **Table I.,** Frankfurt is the most active

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stock exchange for European governments, followed by Luxembourg, Switzerland, London, the EuroNext, and Italy.

Table I. European Stock Exchanges Foreign Government Listings

Exchange	Entities	Issuances	1st Country	2nd Country	3rd Country
EuroNext	8	50	Austria	Argentina	UK
Frankfurt	229	2780	Switzerland	France	Spain
Italian	7	45	Luxembourg	USA	Germany
London	79	522	Canada	Brasil	Japan
Luxembourg	160	1415	Italy	France	USA
Swixx	130	1141	Germany	Canada	Sweden

This table shows the European stock exchanges which cater to foreign governments, the number of entities listed on each, number of issuances on each, and the three most represented foreign governments on each, as of January 2010.

5. Empirical Methods

There are two primary empirical hypotheses analysed in this study. One concerns the economic and stock market time series studies of the European economies, and the other discusses the European countries corporate involvement in the world financial markets. As there is more data transparent for the American region, analysis of the European countries' corporations involvement in the Americas is analysed, and discussed in relation to the capital market and currency union options in Europe.

5.1 Hypotheses

The focus of this part of the study is on corporate involvement in the Americas; European corporate involvement in Europe and Asia can also be analysed, of course, though may be best suited to be performed by someone intimate with European institutional knowledge; this author is American, and as such, he is not able to either effectively or efficiently read many European corporate financial data due to his linguistic shortcomings. A thorough analysis of European corporate activity in the American region, however, can still be very fruitful considering the importance of the American financial markets, and in conjunction with the time series analysis.

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A. Do certain European countries exhibit more preference for the Americas than others, and if so, which American markets do their corporations prefer? How do these countries preferences differ according to region, and according to whether or not they are in the Euro-Zone, Euro-Next, or Nordic, and what of the other countries that could join one of these three groups?

B. Has there been a change in European involvement in the Americas since the introduction of the Euro? If so, what is behaviour of the Euro-Zone countries, and what of the other countries that are either integrated into common stock markets, or could be integrated into common stock markets or a common currency?

C. Is there a discernable time series trend, in terms of unit roots and significant variables, in the stock markets and economies of the European countries? If so, do these trends correlate to region, and do they mirror the affiliations we see today in the Euro-Zone, Euro-Next, and Nordic exchanges.

5.1.1 Cross-Sectional Analyses

Two cross-sectional analyses are examined, a regional and an individual. The regional studies are: All of Europe, European Union, Euro Area, European Union, non Euro Area, Europe, Non Euro, Mainland Continent, British Isles, Scandinavia, British Isles and Scandinavia, Western Europe, and Eastern Europe. These countries have multiple listings: Channel Islands, United Kingdom, Ireland, Germany, Greece, France, Italy, Luxembourg, Netherlands, Spain, Switzerland, Denmark, Finland, Norway, and Sweden. These countries have only singular listings: Austria, Belgium, Croatia, Cyprus, Hungary, Isle of Man, Poland, Portugal, Russia, Turkey, and Iceland. These countries are not represented on any exchanges: Czech Republic, Slovakia, Slovenia, Bosnia and Herzegovina, Romania, Bulgaria, Estonia, Latvia, Lithuania, Albania, Serbia and Montenegro, Ukraine, Belarus, and the FYROM.

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Logistic regressions are performed on a sample of European corporations cross-listed in the Americas, to determine their preferences as of their listing date. To do this, they first are regressed as USA exchanges against the other American exchanges, and then NYSE against the Nasdaq. Then time-specific logistic regressions are run to determine if listing preferences have changed since Euro adoption. This not only provides information about which markets certain types of European firms prefer, it will also help explain what firms are locating in the Americas, which can then help us to understand better some of the dynamics occurring within the European region in regards to their operating of their economies and stock markets.

5.1.2 Time Series Analyses

To analyse the currency union and finance market integration in Europe, a two-step time series test is employed which compares 37 macroeconomic and stock exchange variables from select European countries since 1980 to determine currency union and stock market merger possibilities in the European region. To test these research hypotheses, a two-step time series analsysis is employed that involves (i) eliminating non-stationary variables via unit root tests (ii) performing tests of significance using an ARCH model of the stationary variables from the data set. What can be considered the home market in an era of integration is a common currency, as those countries using a common currency are affected equally by government currency stabilisation policy decisions. These stock exchanges are analysed: Athens, BME Spain, Italian, Budapest, Cyprus, German, Irish, Istanbul, Ljubljana, London, Malta, Nordic, EuroNext, Oslo Bors, Swixx, Warsaw, and Austrian. These countries' economies are studied: Greece, Spain, Italy, Hungary, Cyprus, Germany, Ireland, Turkey, Slovenia, UK, Malta, Iceland, Finland, Sweden, Denmark, France, Portugal, Belgium, the Netherlands, Norway, Switzerland, Poland, Russia, Slovakia, and Austria.

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6. Sampling Distribution

The sampling distribution details both the variables collected and the data sources used. The variables to be used were determined based on analysis of prior studies and after consideration of the current financial climate. Data sources utilised include both free-access databases and proprietary data obtained via correspondence.

6.1 Variables

Variables used include both the logistic cross-sectional, and the unit-root time series. There are 19 cross-sectional variables and 37 time series variables utilised. For the logistic cross-sectional study, there are: seven company specific variables, fourteen country specific variables, three industry specific variables, four market specific variables, and one time specific variable included. For the economy-specific series analysis there are 16 variables, which include: six income and productivity indicators, three investment, savings, and government purchases variables, six monetary stabilisation policy variables, and one general indicator. The stock market-specific time series analysis utilises 21 variables: seven performance indicators, seven liquidity variables, and seven general identification factors. Wojcik (2002) determined that in Europe countries' borders, economic characteristics and corporate governance in their capital markets are the main lines of discrimination between high and low levels of foreign corporate ownership influencing the intensity of cross-border links. Thus, there are in fact dynamics relationships between stock prices and economic variables in Europe, and so time series analysis of their economic and stock exchange characteristics and cross-sectional studies of their foreign corporate activity abroad can be informative about integration in Europe.

6.1.1 Logistic Cross-Sectional

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The firm specific variables account for size (assets), liquidity (sales), profitability (net income), growth prospects or book-to-market ratio (BTM), market cap or market value of equity (MVE), and efficiency of operations or return on assets (ROA). There is also one firm-level indicator variables included, Big5 auditor used in year of listing, and one time period indicator variable included, the year 2002 or SOX. The firm's total assets, total sales, net income, market value of common equity, and book-to-market ratios in year of listing are used to control for firm specific features. Market value of equity is defined as the corporation's stock price multiplied by the number of basic common shares outstanding for the year of listing. Book-to-market ratio is calculated as the ratio of total shareholders' equity to MVE in the year of listing. If shareholders' equity is negative, BTM is assigned a value of zero. Return on assets is calculated as net income scaled by total assets in the year of listing. Another issue that will arise when a firm decides to cross-list on a new exchange is that modifications must be made to the firm's accounting system; managers always have the opportunity to smooth income by selecting among accepted accounting methods or by applying given accounting methods in particular ways, and so an indicator variable equal to 1 if the firm employed a Big5 auditor in the year of listing is included. What is also helpful is using a cut-off date to analyse trends before and after, and for this reason, SOX passage in 2002 is used both as a midpoint, and to further examine its effect. Additionally, 2002 also happens to be shortly after Euro adoption, and so this can shed some light on those processes as well.

The country specific variables tested are: English speaking, emerging, common law, tax haven, and difference in trade to test for foreign dependence. The industry specific variables of energy, tech, or non/tech are added to control for preferences in industrial relocation. Type of home government can also affect the cross-listing decision of a foreign firm. For this reason a country-specific indicator variable for home government, equal to 1 for common law is included; indicator variables for English speaking and tax haven also flow from this same reasoning. The reason for including emerging country

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as an indicator is that emerging countries typically experience higher degrees of corruption and have less developed regulatory regimes; as such, firms from these countries should prefer markets with similar regulatory structures. As well, the country specific variable diff_trade is included to control for foreign market dependence, which is calculated by the difference in home and foreign government trade balance in the year of listing scaled by home country GDP. Indicator variables are included for industry type, as studies have shown that in matching companies from Australia, Canada, and the USA by size and industry, the degree of capital market integration varies across industries.

As market conditions have also been shown to impact a corporation's listing decision, several explanatory exchange-specific variables are used: the difference in the turnover of domestic shares, the difference in index returns, the difference in share value, and the percentage change in total companies per exchange in year of listing. Domestic as opposed to total values are used for these values to provide a more consistent sample of corporations that typically list on the respective exchanges. Velocity, turnover, or liquidity is the ratio between the turnover of domestic shares and their market capitalisation for the year. Index return is measured as the percentage of the exchange's index return for the year. Value of share trading refers to the total number of shares traded multiplied by their respective matching prices for the year of listing, and the percentage change of companies is measured as the change in total companies listed on the exchange for the 12 calendar months preceding the listing event.

6.1.2 Two-Step Time Series

As the primary focus of the paper is to add to the cross-listing literature by focusing on the stock-market attributes of European corporations in the Americas at their listing dates, there is less attention devoted to the time series variables used for the unit root and ARCH tests. They are, however, the

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traditional variables used for such analyses, and thus this type of analysis provides additional explanation of integration attitudes in Europe. The economy-specific and stock market-specific tests employ 21 variables for a total of 37.

In the economy analysis, 16 variables are examined. There are five income and productivity indicators: gross domestic product (GDP) in USA dollars, percentage change in GDP, gross national income (GNI), GDP in terms of purchasing power parity (GDP-PPP), and GDP-PPP as a percentage of the world GDP. Investment, savings, and government purchases are represented with five indicators: investment, gross savings, gross external debt, current account balance (CAB), and CAB percentage of GDP. There are six indicators commonly used for monetary stabilisation policy analysis: short-term interest rates, long-term interest rates, exchange rates, inflation rate, unemployment rate, and poverty rate. The overall population level is also included as a general variable. The exchange rate is based on that of the USA. As poverty rate calculations can differ by country, it is calculated as the percentage of the people living under the poverty line for that country, as per the IMF website.

For the stock market study, 21 variables are used. These include seven performance indicators: index levels, equity market cap, bond market cap, PE ratio, gross dividend yield, total performance, and index performance. Seven liquidity variables are regressed: value of share trading, value of bond trading, equity turnover, value of domestic equity trading, value of foreign equity trading, value of domestic bond trading, and value of foreign bond trading. Seven general identification factors are utilised: number of companies, stock market's importance in the national economy, gross capital formation, domestic equity capital raised, foreign equity capital raised, domestic bond capital raised, and foreign bond capital raised. PE ratio is calculated by dividing the market capitalisation by the total market earnings of the stocks included in the main index of the stock exchange. Gross dividend yield is

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determined by dividing the total dividends distributed by the domestic companies composing the main index by their market capitalisation. Total performance is calculated by adding the annual stock price index performance and the gross dividend yield paid during a given year. Index performance is calculated as the percentage change in index level from the previous year. Turnover is calculated as value of share trading divided by equity market cap. Stock market's importance in the national economy is calculated as equity market cap divided by GDP. Capital raised is the exchange's investment flows-capital raised divided by the national gross fixed capital formation (GFCF). Gross fixed capital formation is obtained from the IMF website, and is measured as the total value of a country's acquisitions less disposals of fixed assets for a given year.

6.2 Data Sources

Multiple data sources are used for both the cross-sectional and the time series collections. The cross-sectional data collection took substantially more time to complete, as many of the variables had to be cross-referenced and hand-collected from old listing prospectuses and annual financial information forms. The time series data collection was more straight-forward.

6.2.1 Logistic Cross-Sectional

A total of 19 variables are applied. Eight are indicator variables and 11 are numerical values. Of the 11 numerical values, four are exchange-specific variables, and six are firm-specific variables, with three being logs of the numerical values for better standardisation. Six indicator variables are used for geographic region or country, and two indicator variables are included for industry. Two more indicator variables are included for company specific characteristics, and diff_trade is the one country-specific quantitative variable. All variables are measured in terms of USA dollars.

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As described in Table **XVIII.**, there are a total of 209 (NYSE) + 172 (Nasdaq) + 27 (TSX) + 13 (TVSX) +64 (BMV) + 4 (BOVESPA) + 14 (BSX) corporations from each exchange for a sample total of 503 European firms listed on American exchanges. Due to incomplete information: 12 firms are dropped from the NYSE, 15 from the Nasdaq, and 7 from the BSX. This drops the total sample to 469 European firms listed on American exchanges for statistical regression analysis purposes.

The first items to be collected were the listings of the current foreign firms from the respective exchanges. The NYSE and NASDAQ provide this data directly on their websites. TSX responded to email inquiries and provided listings, and BMV, BOVESPA, and BSX provided the information on their websites as well. Second, the delisted firms were collected. For the USA exchanges, a Google search was used, as well as the SEC website. The BSX provides that data on their website, and the TSX provided a proprietary listing. Brasil has not had much turnover through the years, so no delisted firms are obtained for Brazil, even though if they were needed it is questionable whether they would have been able to be located. No delisted Mexican firms were able to be located after an exhaustive search online and multiple requests to the Mexican stock exchange, providing the only missing link in the study; there have been only 57 total Mexican firms delisted since 1990, and it is likely that the vast majority of those are from the USA, and consequently no European firms cross-listed in the Americas have likely been left out. ADR data from the Bank of New York and Citibank provided supplementary data for CUSIP, (Committee on Uniform Security Identification Procedures), year of listing, and industry data for cross-checking purposes. After the lists of foreign companies were collected for each exchange, firm specific data was needed. The Compustat database was used to extract data on total assets, net income, sales, BTM, and MVE in the year of listing. For companies not available, such as many TSX, BMV, BOVESPA, and BSX firms, the SEDAR database, company websites, and Yahoo Finance provided the necessary data. Next all the corporations' annual reports were searched through to

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identify which firms had employed a big 5 auditor in the year of listing. Some of this data had already been retrieved in an earlier step with SEDAR, though the remaining is collected via EDGAR, SEDAR again, and company websites. The logs of MVE, Assets, and Sales are used for better standardisation in the logistic model. If sales are zero or btm, then logsales is assigned a value of 0, and if shareholder's equity is negative, then BTM is assigned a value of 0.

Indicator variables were then assigned. Companies are assigned indicator variables equal to 1 if they are from an emerging country, as reported by the World Bank. Tax haven is an indicator variable included to control for how authoritative and strict the home tax regime is; firms will gravitate towards similar exchanges, with the USA being the most strict as a result of legislation such as SOX. A common law home government, English speaking country, and having a Big5 auditor in year of listing also result in a one for the indicator variable. Industry indicators are included for energy, tech, and non/tech[2]. The final country specific variable needed was diff_trade, which is defined as the difference between home and foreign government trade balance in the year of listing scaled by home country GDP.[3] The trade balances are obtained from the International Monetary Fund (IMF) website, with GDP data obtained from there as well. Similar to the exchange-specific indicators, the Canadian values are then subtracted from the USA values to arrive at the final value for difference in trade.[4] These could be different for each exchange, though there are infinite possibilities what values can be assigned; as such, and due to the time required to locate all the data, one set was finalised on with the USA acting as the primary, Canada acting as the primary when the USA was not part of the calculation, and England being used as a proxy in the Canadian and USA corporations cross-listed onto each other exchanges.

[2] Non/tech is dropped from the regression to avoid the dummy trap.

[3] For example, for a Chinese listed firm on the NYSE: the USA/China trade balance scaled by USA GDP in the year of listing, minus the Canada/China trade balance scaled by Canadian GDP in year of listing.

[4] This is true for the Canadian and USA exchanges; for the other American exchanges, the respective country trade difference, i.e. Mexico, Brazil, or Bermuda, is subtracted from the Canadian trade difference. For USA and Canadian corporations cross-listed onto Canadian or USA exchanges, UK values are substituted appropriately, as a Canadian corporation cross-listing onto a USA exchange is usually not deciding between the USA or Canada.

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Perhaps Mexico or Brazil could have been used here, however, the use of England offers a new distinguishing aspect to the study, and also represents a legitimate choice of cross-listing market, as London is one of the most desired foreign stock exchanges around the world.

The exchange specific variables presented the greatest challenge in collection. The preference would be to use the value in the month of listing, however, it is difficult to obtain month of listing values for some of the less transparent exchanges and more obscure variables for all years and months. For this reason, year of listing is used for all variables in order to standardise the data sets and tests. All exchange specific factors are calculated using the USA exchange data as the primary, where applicable, as with the diff_trade variable. For example, when calculating TSX's index return differential, TSX data is subtracted from NYSE data. This creates diff_liquidity, diff_index return, diff_share differential, and diff_percentage of company turnover. Exchange specific variables were retrieved from the World Federation of Exchanges website, DataStream, and through direct correspondence with the individual exchanges. Additionally, the London Stock Exchange's main index FTSE is used for the calculation of exchange level variables of Canadian firms on USA exchanges and USA firms on Canadian exchanges, in order to provide the next most realistic option for exchange level and difference in trade variable comparisons.

6.2.2 Two-Step Times Series

A total of 37 variables are applied in hypothesis two, and all are numerical values. For the economy study there are five income and productivity indicators; five investment, savings, and government purchases variables; six monetary stabilisation policy variables; and one general indicator. For the stock market study there are seven performance indicators, seven liquidity variables, and seven general identification factors. The majority of the variables for the economy time series analysis were obtained

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from the International Monetary Fund website. There were a few variables that were incomplete, such as: output gap, savings rates, investment rates, foreign direct investment rates, interest rates, poverty rates, unemployment rates, and exchange rates.

6.3 Limitations

Several limitations presented themselves that made the data collection process more difficult. As much of the exchange information was obtained from the World Federation of Exchanges database, any data limitations from that database could be debilitating; as such, exchange info only goes back to 1996 on the World Federation of Exchanges database. Of the three primary assumption issues; heteroscedasticty, autocorrelation, and model specification, the latter, model specification is the most pressing issue. Due to the large amount of variables used, it is difficult to say if all variables are truly needed in the final regression, or if all necessary explanatory variables have been culled from the error term. Another issue may be the standardisation of all variables. The size and scale variables were standardised using their logs, and the index variables were calculated using the same primary variables with the USA info serving as the model. The use of many dummy variables makes model creation more difficult as well, as dummy variable transformation can get rather mathematically involved.[5] One can conclude, however, that this sample reasonably represents the actual population of European corporations listing on American exchanges, as there are very few companies left out. Although this is not a representative sample of all European firms listing on all American markets from market inception, it does provide a fair sample for use in today's economy.

7. Results

This study analyses whether corporations from the European region prefer certain stock exchanges over

[5] Sweeny, R., and Ulveling, E. (1972) A transformation for simplifying the interpretation of coefficients of binary variables in regression analysis, *The American Statistician* **26,** 30-32.

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others, and if so, what does that mean for stock market integration and currency union convergence within Europe. As the Americas region is arguable the most influential in the world, understanding how one's corporations interact within that region can potentially provide useful information for numerous purposes relating to economics issues within the home region. Two samples are used: USA exchanges (0) v. other American exchanges (1); NYSE (0) v. Nasdaq (1).

7.1 Logistic Cross-Sectional

Prob (NYSE =0) (1)

$$= \alpha + \beta 1 logMVE + \beta 2 logAst + \beta 3 logSales + \beta 4 ROA + \beta 5 NI + \beta 6 BTM + \beta 7 Big5 + \beta 8 SOX + \beta 9 English + \beta 10 Energy + \beta 11 Tech + \beta 12 Emerging + \beta 13 CommonLaw + \beta 14 TaxHaven + \beta 15 Diff\_Trade + \beta 16 Diff\_Liquidity + \beta 17 Diff\_IndexReturn + \beta 18 Diff\_NCompanies + \beta 19 Diff\_ShareValue + \varepsilon$$

7.1.1. Regional Studies

Europe includes: Austria, Belgium, Channel Islands, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland, and the UK. European Union includes: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Spain, Sweden, and the UK. Euro-Zone includes: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain. EU-NonEuro includes: Denmark, Hungary, Poland, Sweden, and the UK. Europe-NonEuro includes: Channel Islands, Croatia, Denmark, Hungary, Norway, Poland, Russia, Sweden, Switzerland, and the UK.

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Mainland includes: Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Poland, Portugal, Russia, Spain, and Switzerland. British Isles includes: Channel Islands, Ireland, and the UK. Scandinavia includes: Denmark, Finland, Norway, and Sweden. Western includes: Austria, Belgium, Channel Islands, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the UK. The UK is the only individual country from Europe that has significant results for cross-listings in the Americas.

Table II. Europe and the UK

	Europe				UK			
	Full Sample		USA Only		Full Sample		USA Only	
Log Assets			-2.52	*			-2.07	**
Log Sales	-2.14	**						
ROA							-1.96	**
Big5	-2.2	**						
SOX	4.18	*			2.57	*		
Energy	2.32	**						
Tech			4.48	*			1.66	***
English	2.02	**						
Tax Haven	2.92	*						
Diff_Trade	2.73	*	2.55	*	2.76	*	1.98	**
Diff_Liquidity	-5.56	*			-2.84	*		
Diff_IndexReturn	-2.2	**	-3.38	*				
Diff_NCompanies	-4.97	*	-6.59	*	-2.51	*	-2.73	*
Diff_ShareValue	-1.91	***	1.96	**				

The Europe sample includes 477 firms in the full sample (77% concordant with a chi-square of 406.3), and 362 firms in the USA only sample (65% concordant with a chi-square of 322.86). The UK sample includes 175 firms in the full sample (88% concordant with a chi-square of 186.16) and 64 firms in the USA only sample (75% concordant with a chi-square of 127.21).

Europe includes: Austria, Belgium, Channel Islands, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland, and the UK. UK is the only country that had significant results on its own. In the Europe full Americas sample, companies with high sales and employing a Big5 auditor

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prefer the USA exchanges, while those listing since 2002, energy firms, and those from tax havens and common law countries prefer the other American exchanges. Trade balance is important when listing onto other American exchanges, though market liquidity, index return, number of companies, and share value are influential when listing onto USA exchanges. In the Europe USA sample, high amounts of assets indicate a preference for the NYSE, while technology firms prefer the Nasdaq. Trade balance and share value are important when listing onto the Nasdaq, while index return and number of companies are influential for NYSE listings. For the UK full Americas sample, since 2002, UK companies have listed more onto other American exchanges, and trade balance is also influential when listing onto other American exchanges; liquidity and number of companies are important when listing onto the NYSE for UK companies. In the UK USA sample, firms with high amounts of assets and ROA prefer the NYSE over the Nasdaq, while technology firms prefer the Nasdaq. Trade balance is important when listing onto the Nasdaq for UK firms, while number of listed companies is more relevant when listing onto the NYSE.

Table III. The European Union and the Euro-Zone

	EU				Euro			
	Full Sample		**USA Only**		**Full Sample**		**USA Only**	
Log MVE					1.81	***		
Log Assets			-2.93	*	1.8	***		
Log Sales	-2.17	**			-3.13	*		
BTM					1.74	***		
Big5	-1.92	***						
SOX	3.86	*			3.12	*		
Energy	2.38	**			2.24	**		
Tech			4.68	*	1.62	***	3.94	*
Tax Haven			2.87	*			2.64	*
Diff_Trade	2.66	*	2.49	*			2.45	*
Diff_Liquidty	-5.01	*	-2.47	*	-2.56	*		
Diff_IndexReturn	-1.72	***	-6.14	*			-2.16	**
Diff_NCompanies	-4.16	*			-2.54	*	-3.92	*

The European Union sample includes 423 firms in the full sample (76% concordant with a chi-square of 344.29), and 362 firms in the USA only sample (66% concordant with a chi-square of 299.43). The Euro-Zone sample includes 226 firms in the full sample (82% concordant with a chi-square of 178.02) and 184 firms in the USA only sample (75% concordant with a chi-square of 188.01).

European Union includes: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece,

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Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Spain, Sweden, and the UK. Euro-Zone includes: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain. In the EU full Americas sample, firms with high sales and those employing a Big5 auditor prefer the USA exchanges, while those listing since 2002 and energy corporations prefer the other American exchanges. Trade balance is important when listing onto the other American exchanges, while market liquidity, index return, and number of listed companies influence listing on the USA exchanges. In the EU USA sample, firms with high amounts of assets prefer the NYSE over the Nasdaq, while technology firms and those from tax havens prefer the Nasdaq. Trade balance is more important when listing on the Nasdaq, while liquidity and index return are influential when listing onto the NYSE. In the Euro-Zone full Americas sample, firms with high levels of MVE, assets, BTM, those listing since 2002 and energy and technology firms prefer the other American exchanges over the USA exchanges. Firms with high amounts of sales prefer the USA exchanges, and market liquidity and number of companies are more important when listing onto the USA exchanges. In the Euro-Zone USA sample, technology firms and those from tax havens prefer the Nasdaq over the NYSE, while trade balance is influential in listing onto the Nasdaq, and index return and number of companies listed are more important when listing onto the NYSE.

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Table IV. NonEuro-European Union and Europe

	EU-NonEuro				Europe-NonEuro			
	Full Sample		USA Only		Full Sample		USA Only	
Log Assets			-2.52	*			-2.69	*
Big5					-1.8	***		
SOX	2.8	*			2.84	**		
Energy	1.65	***			1.72	***		
Tech			1.89	***			2.3	**
Tax Haven					2.44	**	-1.66	***
English			-2.68	*			-2.46	*
Diff_Trade	2.85	*	2.21	**			2.25	**
Diff_IndexReturn			-1.64	***	-1.96	**	-2.25	**
Diff_Liquidity	-3.07	*			-3.33	*		
Diff_NCompanies	-2.86	*	-3.81	*	-2.19	**	-4.74	*
Diff_ShareValue					-1.82	***		

The Non-Euro European Union sample includes 196 firms in the full sample (88% concordant with a chi-square of 204.04), and 362 firms in the USA only sample (68% concordant with a chi-square of 133.28). The Non-Euro Europe sample includes 250 firms in the full sample (88% concordant with a chi-square of 268.14) and 176 firms in the USA only sample (67% concordant with a chi-square of 163.76).

EU-NonEuro includes: Denmark, Hungary, Poland, Sweden, and the UK. Europe-NonEuro includes: Channel Islands, Croatia, Denmark, Hungary, Norway, Poland, Russia, Sweden, Switzerland, and the UK. In the EU-NonEuro full Americas sample, energy corporations and those listing since 2002 prefer the other American exchanges, and trade balance is important when listing onto the other American exchanges, while market liquidity and number of companies is relevant when listing onto the USA exchanges. In the EU-NonEuro USA sample, firms with high amounts of assets and those from English speaking countries prefer the NYSE, while technology firms prefer the Nasdaq; trade balance is important for firms listing onto the Nasdaq, while index return and number of listed companies are relevant when listing onto the NYSE. In the Europe-NonEuro full Americas sample, firms employing Big5 auditors prefer the USA exchanges, while energy firms, those from tax havens, and those listing since 2002 prefer the other American exchanges; index return, market liquidity, number of listed companies, and share value are all important when listing onto USA exchanges. For the Europe-NonEuro USA sample, corporations with high amounts of assets and those from tax havens and English speaking countries prefer the NYSE, while technology firms prefer the Nasdaq over the NYSE.

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Trade balance is important when deciding to list onto the Nasdaq, while index return and number of listed companies are influential when listing onto the NYSE.

Table V. Mainland and Western Europe

	Mainland				Western			
	Full Sample		USA Only		Full Sample		USA Only	
Log MVE			-1.89	***				
Log Assets	1.71	***					-3.7	*
Log Sales	-2.5	*	-2.05	**	-1.74	***		
NI					1.74	***		
ROA							-3.49	*
Big5	-2.26	**			-2.1	**		
SOX	3.41	*			4.02	*		
Energy	1.87	***	2.48	*	2.04	**		
Tech	1.77	***	3.87	*			3.25	*
English					1.91	***		
Tax Haven	2.24	**	1.78	***	2.97	*		
Diff_Trade	-1.88	***	2.08	**	2.71	*		
Diff_IndexReturn			-3.23	*	-1.97	**	-2.75	*
Diff_Liquidity	-2.88	*			-5.46	*		
Diff_NCompanies	-2.46	*	-4.27	*	-4.7	*	-5.33	*
Diff_ShareValue			2.28	**			1.92	***

The Mainland Europe sample includes 248 firms in the full sample (86% concordant with a chi-square of 218.55), and 193 firms in the USA only sample (75% concordant with a chi-square of 190.53). The Western Europe sample includes 467 firms in the full sample (78% concordant with a chi-square of 404.98) and 352 firms in the USA only sample (72% concordant with a chi-square of 349.88).

Mainland includes: Austria, Belgium, Croatia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Poland, Portugal, Russia, Spain, and Switzerland. Western includes: Austria, Belgium, Channel Islands, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the UK. In the Mainland full Americas sample, firms with high amounts of assets, energy and technology firms, those listing since 2002, and those from tax havens prefer the other American exchanges, while those with high levels of sales and those employing Big5 auditors prefer the USA exchanges. Trade balance, market liquidity, and number of listed companies are all important when listing onto USA exchanges. For the Mainland USA sample, firms with high MVE and sales prefer the NYSE to the Nasdaq, while energy and technology firms and those from tax havens prefer the Nasdaq. Trade balance and share

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value are important considerations when listing onto the Nasdaq, as are index return and number of listed companies when listing onto the NYSE. In the Western full Americas sample, firms with high amounts of sales and those employing Big5 auditors prefer the USA exchanges, while those with a high NI, those listing since 2002, energy corporations, and those from English speaking countries and tax havens prefer the other American exchanges. Trade balance is important when listing onto other American exchanges, while index return, market liquidity, and number of companies listed are considerations when listing onto USA exchanges. For the Western USA sample, high amounts of assets and ROA indicate a preference for the NYSE over the Nasdaq, whereas technology firms prefer the Nasdaq. Index return and number of listed companies are considered when listing onto the NYSE, while share value is important when listing onto the Nasdaq.

Table VI. British Isles and Scandinavia

	British Isles				BISC			
	Full Sample		USA Only		Full Sample		USA Only	
Log Assets			-2.17	**			-3.39	*
ROA							-2.26	**
SOX	2.87	*			2.58	*		
Energy	1.7	***						
Tech			2.24	**				
English							-2.53	*
Diff_Trade	3.04	*	2.07	**	2.87	*	2.04	**
Diff_Liquidity	-3.19	*			-2.85	*		
Diff_NCompanies	-2.99	*	-4.28	*	-2.91	*	-3.8	*

The British Isles sample includes 208 firms in the full sample (89% concordant with a chi-square of 217.11), and 152 firms in the USA only sample (68% concordant with a chi-square of 138.82). The British Isles-Scandinavia sample includes 237 firms in the full sample (90% concordant with a chi-square of 244.66) and 175 firms in the USA only sample (74% concordant with a chi-square of 179.8).

British Isles includes: Channel Islands, Ireland, and the UK. Scandinavia includes: Denmark, Finland, Norway, and Sweden. For the British Isles full Americas sample, energy firms and those listing since 2002 prefer the other American exchanges, trade balance is relevant when listing onto the other American exchanges, and market liquidity and number of listed companies are considered heavily when listing onto the USA exchanges. In the British Isles USA sample, firms with high levels of assets prefer the NYSE, technology firms prefer the Nasdaq over the NYSE, while trade

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balance is important when listing onto the Nasdaq and number of listed companies is relevant to consider when listing onto the NYSE. When Scandinavia is included with the British Isles, the results are essentially the same, except that in the USA sample a high ROA and being from an English speaking country indicates a preference for the NYSE over the Nasdaq, and energy firms and technology firms now have no statistical preferences.

7.1.2. Time Trends

Prob (Pre-8/2002 =0; Post-8/2002 =1) (2)

$$= \alpha + \beta 1 logMVE + \beta 2 logAst + \beta 3 logSales + \beta 4 ROA + \beta 5 NI + \beta 6 BTM + \beta 7 Big5 + \beta 8 SOX + \beta 9 English + \beta 10 Energy + \beta 11 Tech + \beta 12 Emerging + \beta 13 CommonLaw + \beta 14 TaxHaven + \beta 15 Diff\_Trade + \beta 16 Diff\_Liquidity + \beta 17 Diff\_IndexReturn + \beta 18 Diff\_NCompanies + \beta 19 Diff\_ShareValue + \varepsilon$$

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Table VII. SOX- Europe, EU, and Euro-Zone

	SOXEurope				SOXEU				SOXEuro			
	Full Sample		USA Only		Full Sample		USA Only		Full Sample		USA Only	
Log Sales											1.7	***
NI	2.38	**			2.31	**			1.94	**		
ROA	-2.58	*	-2.27	**	-2.5	*	-2.09	**	-2.14	**	-2.87	*
Energy					-1.64	***						
Tech	-1.65	***										
Diff_Trade			-4.37	*			-4.74	*	2.34	**		
Diff_IndexReturn	-2.38	**			-2.25	**	-3.26	*	-2.78	*		
Diff_Liquidity			4.22	*							2.91	*
Diff_NCompanies	-4.16	*	-4.67	*	-4.13	*	-4.57	*	-2.69	*	-3.64	*
Diff_ShareValue			-3.22	*			-1.72	***	-2.31	**	-3.41	*
ZZZ	4.87	*	-4.57	*	4.35	*	-1.93	**	2.56	*	-3.64	*

The Europe sample includes 477 firms in the full sample (39% concordant with a chi-square of 232.54), and 362 firms in the USA only sample (37% concordant with a chi-square of 124.78). The European Union sample includes 423 firms in the full sample (38% concordant with a chi-square of 202.69), and 362 firms in the USA only sample (28% concordant with a chi-square of 89.52). The Euro-Zone sample includes 226 firms in the full sample (50% concordant with a chi-square of 142.42) and 184 firms in the USA only sample (41% concordant with a chi-square of 72.54).

Europe includes: Austria, Belgium, Channel Islands, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Spain, Sweden, Switzerland, and the UK. UK is the only country that had significant results on its own. European Union includes: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Spain, Sweden, and the UK. Euro-Zone includes: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain. In the SOXEurope full Americas sample, firms with a high NI have listed more since 2002, though technology firms and those with a high ROA have listed less; index return and number of listed companies were more important considerations before 2002. In the SOXEurope USA sample the results are similar, except that trade balance and share value have become less important in the USA since 2002, and market liquidity has become more important. In the SOXEU sample the results are similar, except that energy firms have listed less since SOX, and index return has also become less important in the USA since 2002. For the SOXEuro sample, the results are again similar, though trade balance has become more important within all the American exchanges since 2002, and firms with high levels of sales have listed more since SOX. In all samples the other

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American markets have seen more activity than the USA since SOX, and within the USA the NYSE has been more preferred for European firms than the Nasdaq.

7.2 Time Series Analyses

The time series analyses utilise a two-step time series stochastic process that employs unit roots to identify and remove nonstationary elements, and then regresses the significant factors in an ARCH model to identify the most important economy-specific and stock market-specific variables in the European region. For the currency union analysis, GDP Change, GNI, GDP-PPP, CAB percentage GDP, and either short or long term interest rates are dropped from the ARCH tests to avoid collinearity. For the finance market analysis, domestic bond trading and domestic equity trading are dropped from the ARCH tests to avoid collinearity. The stock exchange data has 20 observations ranging from 1990-2009, and the economy data has 30 observations, ranging from 1980-2009. The Budapest stock exchange has observations only going back to 1999, Cyprus only to 2000, and Malta only to 1993. Russsian, Slovak, and Slovenian economic data only goes back to 1990.

7.2.1. Currency Union Convergence

Finland, Norway, Spain, Portugal, and the UK have the most stationary economy-specific variables at 16, followed by Hungary, Luxembourg, Germany, and Switzerland at 15; Denmark, Sweden, Greece, Belgium, Russia, and Ireland, at 14; Malta, Turkey, Slovakia, Slovenia, France, Italy, and the Netherlands at 13; Iceland and Austria at 12; Poland at 11; and Cyprus at 10. Norway has the most significant variables with 102, followed by Portugal with 98; the UK with 92; Finland with 91; Spain with 88; Switzerland with 83; Germany with 80; Denmark with 77; Belgium with 76; Russia with74; Malta with 72; Hungary with 70; Greece with 69; Ireland with 68; Sweden and Luxembourg with 66; Slovakia with 64; Austria with 61; France with 58; Poland wit 57; the Netherlands with 56; Turkey

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with 54; Italy with 47; Iceland with 43; Slovenia with 41; and Cyprus with 37. The most significant stationary economy-specific variables region wide are : GDP-PPP percentage World with 184, CAB with 175, GDP USA with 170, poverty rates with 168, population with 165, exchange rates with 163, gross savings with 161, investment with 154, employment with 149, long-term interest rates with 100, short-term interest rates with 91, inflation rates with 80, gross external debt with 25, and GDP Change with 5.

Table VIII. Stationary Variables Economies

Variables	Cyprus	Malta	Iceland	Denmark	Finland	Norway	Sweden	Turkey
GDP USA	Y	Y	Y	Y	Y	Y	Y	Y
GDP Change	N	N	N	N	Y	Y	N	N
GNI	Y	Y	Y	Y	Y	Y	Y	Y
GDP PPP	Y	Y	Y	Y	Y	Y	Y	Y
GDP PPP %World	N	Y	N	Y	Y	Y	Y	Y
Investment	Y	Y	Y	Y	Y	Y	Y	Y
Gross Savings	N	Y	N	Y	Y	Y	Y	Y
Inflation	N	N	Y	N	Y	Y	N	Y
Employment	Y	Y	Y	Y	Y	Y	Y	Y
Population	Y	Y	Y	Y	Y	Y	Y	Y
Gross External Debt	N	Y	Y	N	N	N	Y	N
CAB	Y	N	Y	Y	Y	Y	Y	Y
CAB %GDP	N	N	N	Y	Y	Y	Y	N
Poverty	Y	Y	Y	Y	Y	Y	Y	Y
IRShort	N	Y	Y	Y	Y	Y	Y	Y
IRLong	Y	Y	Y	Y	Y	Y	Y	Y
Exchange Rate	Y	Y	N	Y	Y	Y	N	N
Totals	**10**	**13**	**12**	**14**	**16**	**16**	**14**	**13**

This table contains unit root tests of stationarity for the major European economies for 17 variables.

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Table VIII. Stationary Variables Economies

Variables	Austria	Hungary	Russia	Slovakia	Slovenia	Poland	Ireland	Belgium	Greece
GDP USA	Y	Y	Y	Y	Y	Y	Y	Y	Y
GDP Change	N	Y	Y	Y	N	N	Y	N	N
GNI	Y	Y	Y	Y	Y	Y	Y	Y	Y
GDP PPP	Y	Y	Y	Y	Y	Y	Y	Y	Y
GDP PPP %World	Y	Y	Y	Y	Y	N	Y	Y	Y
Investment	N	Y	N	Y	Y	Y	Y	Y	Y
Gross Savings	Y	Y	Y	Y	N	Y	Y	Y	N
Inflation	N	Y	Y	Y	Y	N	N	N	Y
Employment	Y	Y	Y	N	Y	Y	Y	Y	N
Population	Y	Y	N	Y	Y	N	N	Y	Y
Gross External Debt	N	N	N	N	N	N	N	N	Y
CAB	Y	Y	Y	Y	Y	Y	Y	Y	Y
CAB %GDP	N	N	Y	N	Y	N	Y	Y	Y
Poverty	Y	Y	Y	N	Y	Y	Y	Y	Y
IRShort	Y	Y	Y	Y	Y	Y	Y	Y	Y
IRLong	Y	Y	Y	Y	Y	Y	Y	Y	Y
Exchange Rate	Y	Y	Y	Y	N	Y	Y	Y	Y
Totals	**12**	**15**	**14**	**13**	**13**	**11**	**14**	**14**	**14**

This table contains unit root tests of stationarity for the major European economies for 17 variables.

Table VIII. Stationary Variables Economies

Variables	Italy	Luxembourg	Netherlands	Portugal	Spain	Switzerland	France	Germany	UK
GDP USA	Y	Y	Y	Y	Y	Y	Y	Y	Y
GDP Change	Y	Y	Y	Y	Y	N	Y	Y	Y
GNI	Y	Y	Y	Y	Y	Y	Y	Y	Y
GDP PPP	Y	Y	Y	Y	Y	Y	Y	Y	Y
GDP PPP %World	Y	Y	Y	Y	Y	Y	Y	Y	Y
Investment	N	Y	Y	Y	Y	Y	Y	Y	Y
Gross Savings	Y	Y	N	Y	Y	Y	N	Y	Y
Inflation	N	N	N	Y	Y	Y	N	Y	N
Employment	Y	Y	Y	Y	Y	Y	N	N	Y
Population	N	Y	Y	Y	N	N	Y	Y	Y
Gross External Debt	Y	Y	N	Y	Y	Y	N	N	Y
CAB	Y	Y	Y	Y	Y	Y	Y	Y	Y
CAB %GDP	Y	Y	N	Y	Y	Y	Y	Y	Y
Poverty	Y	Y	Y	Y	Y	Y	Y	Y	Y
IRShort	Y	N	Y	Y	Y	Y	Y	Y	Y
IRLong	Y	Y	Y	Y	Y	Y	Y	Y	Y
Exchange Rate	N	Y	Y	N	Y	Y	Y	Y	Y
Totals	**13**	**15**	**13**	**16**	**16**	**15**	**13**	**15**	**16**

This table contains unit root tests of stationarity for the major European economies for 17 variables.

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Table IX. ARCH Results Economies

Variables	Cyprus	Malta	Iceland	Denmark	Finland	Norway	Sweden	Turkey	Greece
GDP USA	6	5	8	6	6	8	7	3	9
GDP Change	-	-	-	-	5	-	-	-	-
GNI	-	-	-	-	-	-	-	-	-
GDP PPP	-	-	-	-	-	-	-	-	-
GDP PPP %World	-	9	-	4	7	8	7	9	9
Investment	1	6	3	11	8	10	8	5	6
Gross Savings	-	10	-	5	9	8	10	6	-
Inflation	-	-	4	-	5	12	-	4	2
Employment	6	4	6	11	6	9	3	4	-
Population	8	8	7	9	12	12	7	6	9
Gross External Debt	-	4	2	-	-	-	4	-	1
CAB	6	-	3	6	4	12	7	5	6
CAB %GDP	-	-	-	-	-	-	-	-	-
Poverty	1	10	6	8	10	3	6	6	7
IRShort	-	4	3	3	7	6	7	2	7
IRLong	2	4	1	7	4	2	-	4	2
Exchange Rate	7	8	-	7	8	12	-	-	11
Totals	**37**	**72**	**43**	**77**	**91**	**102**	**66**	**54**	**69**

This table contains ARCH tests of the statonarity time series elements for the major European economies for 17 variables.

Table IX. ARCH Results Economies

Variables	Austria	Belgium	Hungary	Poland	Slovakia	Slovenia	Russia	Luxembourg
GDP USA	8	10	6	7	7	6	9	5
GDP Change	-	-	-	-	-	-	-	-
GNI	-	-	-	-	-	-	-	-
GDP PPP	-	-	-	-	-	-	-	-
GDP PPP %World	10	10	11	-	4	-	10	6
Investment	-	4	3	3	4	5	-	6
Gross Savings	6	4	10	8	10	-	11	7
Inflation	-	-	6	-	5	4	1	-
Employment	2	9	2	3	-	2	13	6
Population	9	6	5	-	9	7	-	12
Gross External Debt	-	-	-	-	-	-	-	1
CAB	7	4	4	9	8	7	10	5
CAB %GDP	-	-	-	-	-	-	-	-
Poverty	4	12	6	9	-	5	2	5
IRShort	7	3	2	1	1	1	5	-
IRLong	1	7	4	8	6	4	3	5
Exchange Rate	7	7	11	9	10	-	10	8
Totals	**61**	**76**	**70**	**57**	**64**	**41**	**74**	**66**

This table contains ARCH tests of the statonarity time series elements for the major European economies for 17 variables.

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Table IX. ARCH Results Economies

Variables	France	Germany	Italy	Netherlands	Switzerland	Spain	Portugal	UK	Ireland
GDP USA	8	3	5	4	8	7	5	7	7
GDP Change	-	-	-	-	-	-	-	-	-
GNI	-	-	-	-	-	-	-	-	-
GDP PPP	-	-	-	-	-	-	-	-	-
GDP PPP %World	6	12	10	4	12	9	11	8	8
Investment	8	8	-	7	9	14	8	11	6
Gross Savings	-	11	7	-	9	6	6	12	6
Inflation	-	9	-	-	7	8	13	-	-
Employment	-	-	8	7	8	11	9	9	11
Population	3	9	-	8	-	-	10	9	-
Gross External Debt	-	-	3	-	-	3	4	3	-
CAB	6	7	4	8	6	11	11	10	9
CAB %GDP	-	-	-	-	-	-	-	-	-
Poverty	11	7	6	5	6	10	10	9	4
IRShort	6	2	2	5	1	2	7	4	3
IRLong	1	6	2	3	8	2	4	6	4
Exchange Rate	9	6	-	5	9	5	-	4	10
Totals	**58**	**80**	**47**	**56**	**83**	**88**	**98**	**92**	**68**

This table contains ARCH tests of the statonarity time series elements for the major European economies for 17 variables.

7.2.2. Stock Market Integration

The Budapest and London stock exchanges have the most stationary stock market-specific variables at 16, followed by Germany and Oslo at 15; Cyprus, Vienna, Italy, Swixx, and Nordiq at 14; Athens, Lubljana, Warsaw, and Luxembourg at 13; Irish, Istanbul, and EuroNext at 12; BME Spain at 11; and Malta at 9. Oslo has the most significant variables with 113, followed by Germany with 102; Swixx with 100; Athens and London with 99; Budapest with 98; Nordic with 88; Istanbul with 65; Vienna and Italy with 60; Luxembourg with 58; Lubljana with 57; Cyprus and EuroNext with 54; Irish with 53; BME Spain with 51; Warsaw with 46; and Malta with 27. The most significant stationary stock market-specific variables region wide are: equity market cap with 133, index levels with 132, bond market cap with 106, value of share trading and stock market in the economy with 97, number of companies with 89, foreign equity trading with 84, domestic bond capital with 74, value of bond trading and foreign bond capital with 67, capital raised with 64, domestic equity capital with 62, turnover with 60, PE ratio

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with 53, gross dividend yield with 45, and foreign bond trading with 41.

Table X. Stationary Variables Stock Exchanges

Variables	Cyprus	Malta	Athens	Irish	Budapest	Istanbul	Lubljana	Vienna	Warsaw
Index Levels	Y	Y	Y	Y	Y	Y	Y	Y	Y
Value of Share Trading	Y	N	Y	Y	Y	Y	Y	Y	Y
Equity Market Cap	Y	Y	Y	Y	Y	Y	Y	Y	Y
Value of Bond Trading	Y	Y	N	Y	N	Y	Y	Y	Y
Bond Market Cap	Y	Y	Y	Y	Y	Y	N	Y	Y
Number of Companies	Y	Y	Y	Y	Y	N	Y	Y	Y
Stock Market Economy	Y	Y	Y	Y	Y	Y	Y	Y	Y
Capital Raised	Y	N	Y	Y	N	Y	Y	Y	N
Turnover	Y	N	Y	N	Y	N	Y	N	N
PE Ratio	Y	N	Y	Y	N	N	N	N	N
Gross Dividend Yield	Y	N	N	N	Y	N	Y	Y	Y
Total Return	N	N	N	N	Y	N	N	N	N
Index Return	N	N	N	N	Y	N	N	N	N
Foreign Bond Trading	N	N	N	N	Y	Y	N	N	N
Domestic Bond Trading	Y	Y	N	Y	N	Y	Y	Y	Y
Foreign Equity Trading	N	N	Y	Y	Y	N	N	N	Y
Domestic Equity Trading	Y	N	Y	Y	Y	Y	Y	Y	Y
Foreign Equity Capital	N	N	N	N	N	N	N	N	N
Domestic Equity Capital	N	Y	N	N	Y	N	Y	Y	Y
Foreign Bond Capital	N	N	Y	N	Y	Y	N	Y	N
Domestic Bond Capital	Y	Y	Y	N	Y	Y	Y	Y	Y
Totals	**14**	**9**	**13**	**12**	**16**	**12**	**13**	**14**	**13**

This table contains unit root tests of stationarity for the major European stock markets for 21 variables.

Table X. Stationary Variables Stock Exchanges

Variables	Luxembourg	BME Spain	Italy	German	London	Swixx	Oslo	Nordic	EuroNext
Index Levels	Y	Y	Y	Y	Y	Y	Y	Y	Y
Value of Share Trading	Y	Y	Y	Y	Y	Y	Y	Y	Y
Equity Market Cap	Y	Y	Y	Y	Y	Y	Y	Y	Y
Value of Bond Trading	Y	N	Y	Y	Y	Y	Y	Y	Y
Bond Market Cap	N	N	Y	Y	Y	Y	Y	Y	Y
Number of Companies	Y	Y	Y	Y	Y	Y	Y	Y	Y
Stock Market Economy	Y	Y	Y	Y	Y	Y	Y	Y	Y
Capital Raised	Y	Y	N	Y	Y	N	N	N	Y
Turnover	Y	N	Y	N	Y	N	Y	Y	N
PE Ratio	N	Y	N	Y	Y	N	Y	N	N
Gross Dividend Yield	Y	Y	Y	N	N	Y	N	Y	Y
Total Return	N	N	N	N	N	N	N	N	N
Index Return	N	N	N	N	N	N	N	N	N
Foreign Bond Trading	N	N	N	Y	N	Y	Y	Y	N

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Domestic Bond Trading	Y	N	Y	Y	Y	N	N	Y	Y
Foreign Equity Trading	N	Y	Y	Y	Y	Y	Y	Y	N
Domestic Equity Trading	Y	Y	Y	Y	Y	Y	Y	Y	Y
Foreign Equity Capital	N	N	N	N	N	N	N	N	N
Domestic Equity Capital	Y	N	N	Y	Y	Y	Y	N	Y
Foreign Bond Capital	N	N	Y	Y	Y	Y	Y	N	N
Domestic Bond Capital	Y	Y	Y	N	Y	Y	Y	Y	N
Totals	**13**	**11**	**14**	**15**	**16**	**14**	**15**	**14**	**12**

This table contains unit root tests of stationarity for the major European stock markets for 21 variables.

Table XI. ARCH Results Stock Exchanges

Variables	Athens	Budapest	Cyprus	Irish	Istanbul	Lubljana	Malta	Oslo	Vienna
Index Levels	7	12	6	8	8	7	7	-	6
Value of Share Trading	7	4	8	5	7	5	-	6	4
Equity Market Cap	7	10	6	7	8	8	1	12	7
Value of Bond Trading	-	-	5	3	6	5	5	10	3
Bond Market Cap	11	9	7	6	7	-	5	13	1
Number of Companies	12	1	5	6	-	5	5	7	7
Stock Market Economy	12	1	-	3	6	5	-	7	7
Capital Raised	8	-	1	5	7	3	-	-	5
Turnover	5	6	5	-	-	1	-	11	-
PE Ratio	8	-	6	6	-	-	-	11	-
Gross Dividend Yield	-	-	4	-	-	6	-	-	4
Total Return	-	4	-	-	-	-	-	-	-
Index Return	-	2	-	-	-	-	-	-	-
Foreign Bond Trading	-	10	-	-	4	-	-	9	-
Domestic Bond Trading	-	-	-	-	-	-	-	-	-
Foreign Equity Trading	10	11	-	4	-	-	-	12	-
Domestic Equity Trading	-	-	-	-	-	-	-	-	-
Foreign Equity Capital	-	-	-	-	-	-	-	-	-
Domestic Equity Capital	-	7	-	-	-	8	3	-	4
Foreign Bond Capital	4	14	-	-	7	-	-	10	8
Domestic Bond Capital	8	7	1	-	5	4	1	5	4
Totals	**99**	**98**	**54**	**53**	**65**	**57**	**27**	**113**	**60**

This table contains ARCH tests of the stationary time series elements for the major European stock markets for 21 variables.

Table XI. ARCH Results Stock Exchanges

Variables	Luxembourg	BME Spain	Italy	German	London	Nordic	EuroNext	Swixx	Warsaw
Index Levels	8	7	8	8	9	7	10	10	4
Value of Share Trading	7	7	5	8	1	11	3	5	4
Equity Market Cap	3	6	6	8	12	10	6	10	6
Value of Bond Trading	-	-	4	7	7	2	4	5	1
Bond Market Cap	-	-	5	9	7	9	6	6	5
Number of Companies	-	3	2	8	6	6	4	8	4

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Stock Market Economy	8	7	4	3	7	11	6	8	2
Capital Raised	5	6	-	10	11	-	3	-	-
Turnover	8	-	8	-	7	9	-	-	-
PE Ratio	-	5	-	11	6	-	-	-	-
Gross Dividend Yield	6	2	5	-	-	1	7	8	2
Total Return	-	-	-	-	-	-	-	-	-
Index Return	-	-	-	-	-	-	-	-	-
Foreign Bond Trading	-	-	-	-	-	7	-	11	-
Domestic Bond Trading	1	-	-	-	-	-	-	-	-
Foreign Equity Trading	-	2	6	12	6	9	-	6	6
Domestic Equity Trading	6	-	-	-	-	-	-	-	-
Foreign Equity Capital	-	-	-	-	-	-	-	-	-
Domestic Equity Capital	6	-	-	7	7	-	5	8	7
Foreign Bond Capital	-	-	3	11	5	-	-	5	-
Domestic Bond Capital	-	6	4	-	8	6	-	10	5
Totals	**58**	**51**	**60**	**102**	**99**	**88**	**54**	**100**	**46**

This table contains ARCH tests of the stationary time series elements for the major European stock markets for 21 variables.

8. Summary on European Integration

A few important caveats regarding stock markets and currency unions are that integration does not imply correlation, as sensitivities between variables may differ. Integration will by default also be less in emerging countries, and even though international markets will increase some efficiencies, they will also increase contagion and volatility. Additionally, it is arguably easier to more efficiently forecast stock exchange mergers than currency unions, because stock market data is primary, while economy-specific data is secondary. Nevertheless, in an ever-globalising world, what can be considered the home market is becoming more vague, while the possibility of both capital market mergers and currency unions are becoming more dependent on each other. Within Europe, the UK, Germany, and Switzerland all occupy arguably the most unique roles, while the USA exchanges of the Nasdaq and the NYSE have established branches within Europe.

An important aspect of capital market integration and common currency acceptance is the nature of the arrangements. In many Western countries, the stock exchanges are actually publicly traded entities, and

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therefore held by private citizens, though the printing press is the complete domain of the government. It thus, in theory, becomes much easier for stock market integration to occur, as evidenced by the NYSE and Nasdaq branching into Europe. Many times there is still the government securities administration who can block such deals however. Therefore joining the currency union is almost a national move to help the national welfare of the people, while stock market integration can be characterised as motivated more by business interests. This would suggest that stock market integration would be easier to occur, though not necessarily needed to occur before currency integration.

Stock markets are essential to the growth of a country. They are run by businessmen, and strictly regulated by the governments. In the island economy, the stock market will transfer funds between investors and businesses on a larger scale than deposit banking may, along with promises of a higher reward with higher risk. The government steps in to regulate, as they do with the banking system, and financial intermediation thus evolves to a capital debt and equity market level along with the money market banking system. Just as the government does not own the banks, they do not own the stock market auctioneer either, they make the laws to regulate them and allow their citizens to enter the business that suits them, whether it be financial intermediation or other pursuits. However, when the island economy engages in trade with other islands, the government faces a dilemma. The government wants to increase trade and take advantages of economies of scale and competitive advantages to raise welfare, yet it must also be careful to not let the foreigners dictate the terms of trade on a long-term basis for short-term benefits. This includes foreign corporations with domestic concerns that do not take control of markets, as well as ownership stakes in the country's present businesses. All businesses are of concern, though the financial intermediaries are of primary concern. The government must ensure the banks and stock market remain in home control to ensure the domestic citizens are being cared for, not at the expense by the foreign citizens.

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One only has to look at the Nasdaq OMX websites to see that the exchanges they have united in Europe offer much better products and service than they did previously. Nasdaq even offers competitive clearing facilities against the LSE from their London office. As the USA can attest to from their revolutionary experiences, however, when the exchanges become more advanced and developed, will they want Nasdaq's name attached to their national stock markets. The stock market is a very patriotic symbol, as evidenced by Norway's insistence on maintaining the Oslo Bors, while their Scandinavian neighbours have all combined onto one. In fact, the majority of stock exchanges in the world do not allow foreign firms from entering, and are owned by the government. Not the most capitalised, though the numerical majority nonetheless. This list includes some rather large economies and powerful nations as well, including: Russia, China, India, Brazil, and all the Muslim countries. One cannot reasonably imagine there ever being a NYSE Moscow or a Nasdaq Shanghai. The stock exchange is a national symbol, much like the nation's currency. Yet, integration of both of these instruments is necessary to economic unions for higher welfare for citizens. As such, some sort of compromise has to be reached before capital markets for financing needs and currency unions for monetary policy issues can proceed. National pride is maintained with currency combinations through keeping national symbols on the currency, and through stock markets with the name and control. Currency will never be controlled by an outside region, though as we see with the NYSE and Nasdaq foreign regions can gain a footing in the capital markets. It is only reasonable to assume that national governments will want to maintain some symbolism.

Nasdaq has branched out into several markets in Europe and the Middle East. They currently regulate the Nasdaq OMX, Nasdaq Baltic, and Nasdaq Dubai. This is a great example, as is the NYSE EuroNext, of integration of stock exchanges. There is also a Nasdaq OMX First North which is the

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growth exchange for the Nasdaq OMX, which serves Denmark, Finland, Sweden, and Iceland. Norway still maintains their own stock exchange, the Oslo Bors. The Nordic exchange has 26 foreign countries, all of which are from Norway. This is a conglomeration between Denmark, Sweden, Finland, and Iceland. However, only Finland uses the euro for currency from this group. Denmark, Iceland, Sweden, and Norway all use a form of the Krone for their currencies. As such, there is clearly a trend emerging here, with possibilities for Norway to merge their Oslo Bors with the Nordic exchange, as well as for the countries to adopt a common Krone, or to adopt the euro. A similar trend has developed in Western Europe, though the countries first adopted a common currency, then some banded together stock exchanges, opposite to the Nordic countries not adopting a common currency, yet banding together their stock exchanges.

In terms of the NYSE EuroNext, which is comprised of France, Belgium, the Netherlands, and Portugal, the primary benefit is most likely name recognition and security for foreign issuers, as they see the established American names and they feel better about the capital access they will receive from the EuroNext and Nordic exchanges. It is also very likely that the resources of the NYSE and Nasdaq helped to speed up an integration process between these countries. This is also seen in the Nasdaq's work in the Balkans, through the Nasdaq Balkan exchange. An issue that might arise is to how the EuroNext and Nordic exchanges would fit into a merger of sorts between the NYSE and Nasdaq. Would there be business issues that render their relationships with the American exchanges null, and what help are they really providing to the European exchanges anyways. Most likely, the European branches would continue, though affiliated through a corporate name rather than via a city name, just as Paris and Brussels still have their own exchanges within the EuroNext system.

Although there are other European countries clearly, the focus of this paper is on those with the most

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established and transparent stock exchanges, and the influences of the largest economies on financial integration in Europe. London has always occupied a unique role in the global financial network. They occupy a geographically decisive position, which allows them to be isolated from Europe while still being an integral part of the European economic society. Not only does this isolate them from physical contagions, it allows them to be more discerning in their financial relationships as well, although the close bond to the USA banks looks to have been quite regrettable. Germany has over time carved out a niche as the financial leader of the European mainland. Their low inflationary policies have helped to strengthen the EuroZone, as they also house the European Central Bank. Switzerland is the major European economy which has shown no interest to join the Euro. They maintain a strategic position in the middle of the European Union, acting as a sort of stabilising influence to the EuroZone surrounding them, much like their history of mutual independence suggests. Other countries that are influential include Iceland, who is a member of the Nordic and a developed economy themselves. Iceland is already a member of the Nordic exchange, though Breeden and Pétursson (2006) suggest that the Iceland's trade could increase by about 60% and that the trade-to-GDP ratio could rise by 12 percentage points should Iceland join the European Union and EMU. As such, the stock market merger and currency union possibilities in Europe are diverse, and likely can help create greater economic growth in Europe.

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Table XII. European Stock Markets' Foreign Presence

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	UK	Ireland	Luxem.	German	EuroNext	Nordiq	Spain	Norway	Austria	Athens	Warsaw	Hungary	Italy	Swixx	Totals
Argentina	2		4				2							1	**9**
Austria	0			15							2			1	**18**
Australia	29													1	**30**
Bahrain	3														**3**
Bangladesh	1														**1**
Barbados	1														**1**
Belgium	1		3	1										1	**6**
Belize	3														**3**
Bermuda	44		6		2										**52**
Brasil	0		2		1		15								**18**
British V.I.	37		1						1					2	**41**
Bulgaria															**0**
Cameroon					1										**1**
Canada	38				3									2	**43**
Cayman Isl.	44				2										**46**
Chile	1						3								**4**
China	6			2											**8**
Croatia	2														**2**
Colombia	0		1												**1**
Cyprus	10							6		2	1				**19**
Czech Rep.	2										1	1			**4**
Denmark	1							1							**2**
Egypt	10														**10**
Estonia	1										2				**3**
Falkland Isl.	2														**2**
Finland	2												1		**3**
France	4		1	3							1		16	3	**28**
Gabon					1										**1**
Georgia	1														**1**
Germany	10		3				1		1		1		12	13	**41**
Gibraltar	3														**3**
Greece	7		1												**8**
Guernsey	0		1	1					1		1	1		1	**6**
Hong Kong	3								1						**4**
Hungary	1		3						3		1				**8**
India	30		129												**159**
Indonesia	1														**1**
Isle of Man	0		1												**1**
Israel	14			9	4									2	**29**
Italy	1			1			1				1			3	**7**
Ivory Coast					1										**1**
Japan	16		2	1	2									1	**22**
Jersey	0	1	1						1						**3**
Jordan	1														**1**
Kazakhstan	4														**4**
Kenya	1														**1**
Korea	0		11												**11**
Kuwait	1														**1**

Shows foreign corporations listed on European stock exchanges as of January, 2010. Although this does not show all foreign corporations listed on European stock exchanges since their inception, this does provide an example as to what foreign corporate activity on the European stock exchanges typically looks like.

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Table XII. European Stock Markets' Foreign Presence

	UK	Ireland	Luxem.	German	EuroNext	Nordiq	Spain	Norway	Austria	Athens	Warsaw	Hungary	Italy	Swixx	Totals
Lebanon	3														**3**
Libya	0		1												**1**
Liechtenstein														2	**2**
Lithuania	1														**1**
Luxembourg	14			5			1	2			3	1			**26**
Malawi	1														**1**
Malaysia	1														**1**
Malta	1														**1**
Marshall Isl.	1														**1**
Mexico		1					11								**12**
Morocco	1				3										**4**
NetherlandA.	3		1											2	**6**
Netherlands	21		2	15	4		2	2	4		2		6	3	**61**
New Zealand	1														**1**
Nigeria	2														**2**
Norway	2					27									**29**
Oman	1														**1**
Pakistan	4		1												**5**
Panama	1				1										**2**
Papua NG.	1														**1**
Peru							1								**1**
Philippines	1														**1**
Poland	6														**6**
Puerto Rico							1								**1**
Qatar	2														**2**
Ireland	66														**66**
Russia	28	1													**29**
Senegal					2										**2**
Singapore	5														**5**
Slovakia											1				**1**
South Africa	12				5									1	**18**
South Korea	15														**15**
Spain	4												1		**5**
Sri Lanka	0		2												**2**
Sweden	4							5			1			1	**11**
Switzerland	3	1		12					3						**19**
Taiwan	14		41												**55**
Thailand	0		1												**1**
Tunisia	1														**1**
Turkey	9		2												**11**
UAE	1														**1**
UK	0	6	5	2			1	2	2					1	**19**
USA	58	1	1	19	34				1					28	**142**
Zambia	1														**1**
Zimbabwe	3														**3**
Total	**630**	**11**	**227**	**86**	**66**	**27**	**39**	**18**	**18**	**2**	**18**	**3**	**36**	**69**	**1250**

Shows foreign corporations listed on European stock exchanges as of January, 2010. Although this does not show all foreign corporations listed on European stock exchanges since their inception, this does provide an example as to what foreign corporate activity on the European stock exchanges typically looks like.

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Table XIII. Annual Listings and Delistings of Foreign Corporations in Europe

	Athens	Spain BME	Italian	Budepest	Cyprus	German	Irish	Istanbul	Ljubljana
1995 Foreign Firms	0	9	4	0	0	944	9	0	0
Foreign Delistings	0	0	0	0	0	N/A	1	0	0
1996 Foreign Firms	0	9	4	0	0	1290	10	0	0
Foreign Delistings	0	0	0	0	0	N/A	1	0	0
1997 Foreign Firms	0	9	4	0	0	1996	4	0	0
Foreign Delistings	0	0	0	0	0	N/A	0	0	0
1998 Foreign Firms	0	12	4	0	0	2784	4	0	0
Foreign Delistings	0	2	1	0	0	N/A	1	0	0
1999 Foreign Firms	0	17	6	0	0	234	23	0	0
Foreign Delistings	0	2	1	0	0	N/A	4	0	0
2000 Foreign Firms	1	31	6	0	0	245	20	0	0
Foreign Delistings	0	0	1	0	0	N/A	4	0	0
2001 Foreign Firms	1	N/A	6	1	0	235	19	0	0
Foreign Delistings	0	N/A	0	0	0	N/A	2	0	0
2002 Foreign Firms	1	29	7	1	0	219	14	0	0
Foreign Delistings	0	1	0	0	0	N/A	5	0	0
2003 Foreign Firms	1	N/A	8	1	0	182	11	0	0
Foreign Delistings	0	N/A	0	0	0	N/A	3	0	0
2004 Foreign Firms	2	N/A	9	1	0	159	12	0	0
Foreign Delistings	0	N/A	0	0	0	N/A	0	0	0
2005 Foreign Firms	2	0	9	1	0	157	11	0	0
Foreign Delistings	0	N/A	2	0	0	N/A	1	0	0
2006 Foreign Firms	2	39	6	0	0	104	11	0	0
Foreign Delistings	0	N/A	1	0	0	N/A	5	0	0
2007 Foreign Firms	3	39	6	0	0	104	11	0	0
Foreign Delistings	0	N/A	0	0	0	N/A	0	0	0
2008 Foreign Firms	3	38	6	3	0	90	10	0	0
Foreign Delistings	0	N/A	0	0	0	22	5	0	0
2009 Foreign Firms	3	40	6	3	0	90	10	0	0
Total Delistings	**0**	**5**	**6**	**0**	**0**	**22**	**32**	**0**	**0**

This table shows the Annual Listings and Delistings of Foreign Corporations in Europe.

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Table XIII. Annual Listings and Delistings of Foreign Corporations in Europe

	London	Luxembourg	Malta	Nordic	EuroNext	Oslo Bors	Swixx	Warsaw	Austria
1995 Foreign Firms	531	228	0	21	485	14	233	0	39
Foreign Delistings	33	10	0	2	14	4	15	0	3
1996 Foreign Firms	532	224	0	24	473	14	223	0	36
Foreign Delistings	50	20	0	0	14	2	11	0	3
1997 Foreign Firms	467	228	0	30	458	21	212	0	37
Foreign Delistings	43	14	0	1	26	3	11	0	1
1998 Foreign Firms	466	223	0	32	449	22	193	0	32
Foreign Delistings	36	15	0	2	25	1	19	0	5
1999 Foreign Firms	448	226	0	35	442	20	173	0	17
Foreign Delistings	47	12	0	3	25	3	22	0	12
2000 Foreign Firms	448	216	0	35	421	24	164	0	14
Foreign Delistings	32	18	0	6	27	6	15	0	3
2001 Foreign Firms	409	209	0	32	N/A-0	26	149	0	14
Foreign Delistings	48	15	0	9	N/A-0	2	17	0	3
2002 Foreign Firms	382	197	0	29	N/A-0	24	140	0	20
Foreign Delistings	35	22	0	6	N/A-0	3	13	0	0
2003 Foreign Firms	381	198	0	30	346	20	130	1	21
Foreign Delistings	46	22	0	4	N/A-0	2	11	0	0
2004 Foreign Firms	351	192	0	30	N/A-0	22	127	5	21
Foreign Delistings	41	16	0	2	0	2	4	0	1
2005 Foreign Firms	349	191	0	21	0	22	124	5	21
Foreign Delistings	36	20	0	1	N/A-0	1	N/A	0	2
2006 Foreign Firms	343	224	0	26	0	34	92	12	17
Foreign Delistings	34	20	0	3	N/A-0	1	N/A	1	3
2007 Foreign Firms	642	221	0	26	0	34	91	13	17
Foreign Delistings	83	15	0	0	43	4	N/A	1	3
2008 Foreign Firms	681	228	0	23	0	50	70	26	17
Foreign Delistings	87	18	0	4	11	4	N/A	1	2
2009 Foreign Firms	673	227	0	22	0	50	70	16	18
Total Delistings	**651**	**237**	**0**	**43**	**185**	**38**	**138**	**3**	**41**

This table shows the Annual Listings and Delistings of Foreign Corporations in Europe.

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Table XIV. European Governments' Listing Preferences

		1st	2nd	3rd	4th	5th	6th
Europe	**Albania**	Luxembourg					
	Austria	Frankfurt	Swixx	Luxembourg	EuroNext	Italy	
	Belgium	Frankfurt	Luxembourg	Swixx			
	Bosnia-Herz	Luxembourg					
	Bulgaria	Frankfurt	Luxembourg	Swixx			
	Canary Islands	Frankfurt					
	Croatia	Frankfurt	Luxembourg	Swixx			
	Cyprus	Frankfurt	London	Swixx			
	Czechoslovakia	Frankfurt	Luxembourg	Swixx	London		
	Denmark	Swixx	Frankfurt	Luxembourg	London		
	Finland	Swixx	Frankfurt	Luxembourg	London	Australia	EuroNext
	France	Frankfurt	Luxembourg	Swixx	London	Australia	Italy
	Georgia	London	Frankfurt				
	Germany	Swixx	Luxembourg	London	Italy	Australia	
	Greece	Frankfurt	London	Luxembourg	Swixx	Italy	
	Hungary	Frankfurt	Swixx	Luxembourg	London		
	Iceland	Swixx	Frankfurt	London	Luxembourg		
	Ireland	Frankfurt	Swixx	London			
	Isle of Man	Frankfurt					
	Italy	Luxembourg	London	Swixx	Frankfurt	EuroNext	
	Latvia	Frankfurt	Luxembourg	Swixx			
	Lithuania	Luxembourg	Frankfurt	Swixx			
	Luxembourg	Swixx	London	Frankfurt	Italy		
	Macedonia	London	Frankfurt				
	Netherlands	Frankfurt	Swixx	London	Australia		
	Norway	Frankfurt	Swixx				
	Poland	Frankfurt	Luxembourg	Swixx			
	Portugal	Luxembourg	Frankfurt	London			
	Romania	Luxembourg	Frankfurt				
	Serbia	Luxembourg					
	Slovakia	Luxembourg	Frankfurt	Swixx	London		
	Slovenia	Luxembourg	Frankfurt				
	Spain	Frankfurt	Swixx	Luxembourg	London		
	Sweden	Swixx	Frankfurt	London	Luxembourg	Australia	
	Switzerland	Frankfurt	London				
	UK	Frankfurt	Swixx	EuroNext			
	Ukraine	Luxembourg	Frankfurt	Swixx			
	Yugoslavia	Swixx					

This table shows European Governments' Listing Preferences.

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Table XV. European Governments' Proportional Utilisation of the Global Markets

		Listed Entities	Total Issues	*Region Totals* Entities	*Region Totals* Issues	% Entities	% Issues	*Region Totals* Entities	*Region Totals* Issues
Europe	**Albania**	1	1			0.0016	0.0002		
	Austria	9	183			0.0144	0.0308		
	Belgium	7	67			0.0112	0.0113		
	Bosnia-Herz	1	2			0.0016	0.0003		
	Bulgaria	3	5			0.0048	0.0008		
	Canary Islands	1	4			0.0016	0.0007		
	Croatia	4	20			0.0064	0.0034		
	Cyprus	4	11			0.0064	0.0019		
	Czechoslovakia	12	40			0.0191	0.0067		
	Denmark	8	45			0.0128	0.0076		
	Finland	9	85			0.0144	0.0143		
	France	57	541			0.0909	0.0910		
	Georgia	2	2			0.0032	0.0003		
	Germany	23	206			0.0367	0.0347		
	Greece	9	104			0.0144	0.0175		
	Hungary	4	81			0.0064	0.0136		
	Iceland	4	10			0.0064	0.0017		
	Ireland	4	32			0.0064	0.0054		
	Isle of Man	1	2			0.0016	0.0003		
	Italy	33	145			0.0526	0.0244		
	Latvia	3	6			0.0048	0.0010		
	Lithuania	3	18			0.0048	0.0030		
	Luxembourg	13	619			0.0207	0.1042		
	Macedonia	2	4			0.0032	0.0007		
	Netherlands	13	297			0.0207	0.0500		
	Norway	5	39			0.0080	0.0066		
	Poland	5	69			0.0080	0.0116		
	Portugal	6	30			0.0096	0.0050		
	Romania	4	8			0.0064	0.0013		
	Serbia	1	1			0.0016	0.0002		
	Slovakia	5	22			0.0080	0.0037		
	Slovenia	2	6			0.0032	0.0010		
	Spain	25	267			0.0399	0.0449		
	Sweden	20	174			0.0319	0.0293		
	Switzerland	31	203			0.0494	0.0342		
	UK	7	44			0.0112	0.0074		
	Ukraine	4	13			0.0064	0.0022		
	Yugoslavia	1	2	**346**	**3408**	0.0016	0.0003	**0.5518**	**0.5734**

The regional percentages are based on calculations from the entire population of foreign government listings on stock exchanges.

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Table XVI. Summary Statistics European Economies

Variable	Austria	Belgium	Cyprus	Denmark	Finland	France	Germany	Greece	Hungary
GDP-$USA	195.08467	236.954	9.22	160.91167	127.21867	1391.656	1888.0033	136.3713	54.94233
GDP-%Change	2.031	1.995333	4.1823333	1.8106667	2.4176667	1.892333	1.657	2.103667	1.437
GNI	192.51973	240.8951	8.8003295	160.04594	125.30005	1397.303	1929.2233	137.2138	52.0434
GDP-PPP	188.06767	225.6333	11.256667	122.98167	104.353	1264.505	1765.969	179.6087	110.572
GDP-PPP%World	0.56	0.670667	0.03	0.3686667	0.309	3.777333	5.2953333	0.527333	0.338667
Investment	28.590861	28.19426	34.364981	27.160965	31.002046	20.15633	21.750667	27.63067	22.43321
Savings	22.55	22.55667	21.65	21.333333	24.583333	20.75567	22.097	20.21667	21.81
Inflation	2.6033333	2.393	4.0733333	3.7206667	3.721	3.715	2.3133333	11.22967	12.43833
Employment	3.729	8.663	3.328	7.653	8.3906667	9.548	7.7806667	8.472667	10.12333
Population	7.8826667	10.16833	0.6403333	5.2503333	5.0683333	57.98867	80.098667	10.50967	10.35
Gross External Debt	192.18	369.0183	8.5459	157.47	97.623333	1515.52	1843.3	65.16133	37.5926
CAB	0.862	6.068333	-0.586667	1.647	2.8746667	2.563667	38.053	-9.467	-3.212667
CAB%GDP	-0.110333	2.276333	-5.063	0.1446667	1.455	0.207667	1.6223333	-5.15867	-4.794
Poverty	4.71	14.63333	22.61	8.4666667	4.25	8.793333	12.053333	21.75667	12.58667
IR Short	5.9389291	6.578512	4.0276667	6.6972118	7.2953463	6.884826	5.2414847	9.082	20.07811
IR Long	6.7409723	7.413222	4.738	7.5751657	8.2846945	7.840889	6.1401388	9.959333	21.41553
Exchange Rate	0.951748	0.931405	0.641987	6.9369244	0.8331085	0.911864	0.9514591	0.625045	132.3539

This table shows Summary Statistics for European Economies.

Table XVI. Summary Statistics European Economies

Variable	Iceland	Ireland	Italy	Luxembourg	Malta	Netherlands	Norway	Poland
GDP-$USA	8.0786667	92.304667	1142.2227	19.9393333	4.139667	385.23	166.455	164.65033
GDP-%Change	2.845	4.3693333	1.3473333	4.36533333	1.630886	2.146	2.7903333	2.2233333
GNI	7.558862	80.816987	1127.7973	17.4020756	3.519147	388.0873356	165.54065	161.92469
GDP-PPP	6.4516667	82.687667	1152.881	18.6453333	5.374	375.9563333	141.00133	327.291
GDP-PPP%World	0.02	0.2166667	3.499	0.05066667	0.015667	1.097666667	0.4076667	0.941
Investment	34.110924	31.494814	21.37	28.6795932	31.86122	25.45544913	30.383661	23.152803
Savings	17.3	24.233333	20.325333	34.1266667	23.98667	25.50333333	29.71	17.82
Inflation	16.547667	4.8716667	5.952	3.451	2.652667	2.479	4.2966667	49.401333
Employment	2.2583333	10.478667	8.935	2.59666667	7.69	5.502333333	3.73	15.056667
Population	0.27	3.7423333	57.159667	0.41366667	0.369	15.396	4.384	37.900667
Gross External Debt	2.1291	677.26667	457.99	901.266667	0.109667	891.7666667	149.86333	67.357233
CAB	-0.807667	-1.754667	-10.69733	2.17	-0.241	20.82733333	16.633667	-6.408333
CAB%GDP	-6.314667	-2.124167	-0.823667	12.1974444	-5.55486	4.944666667	6.479	-4.733
Poverty	7.1033333	9.8933333	13.843333	7.71	10.04667	10.67333333	6.93	20.783333
IR Short	16.301056	7.8785122	9.2667521	3.46266667	4.271333	5.485401433	8.4325005	25.125847
IR Long	16.719223	8.4237779	10.413037	4.526	5.872667	6.4060276	8.6688889	27.481276
Exchange Rate	56.762829	0.8725534	0.7936429	0.93140539	0.399127	0.948093573	6.8529619	2.2743407

This table shows Summary Statistics for European Economies.

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Table XVI. Summary Statistics European Economies

Variable	Portugal	Russia	Slovakia	Slovenia	Spain	Sweden	Switzerland	Turkey	UK
GDP-$USA	105.264	509.7795	33.8375	27.216	628.3573	244.47133	254.657667	255.68533	1295.6763
GDP-%Change	2.647	2.1625	4.403	3.817	2.704333	2.05	1.76966667	3.954	2.1666667
GNI	102.433523	589.574712	33.078221	26.1286	617.8264	243.43169	264.275207	257.6526	1296.9511
GDP-PPP	139.041667	1344.4345	66.876	36.0575	736.0187	195.21333	189.679	424.51933	1244.381
GDP-PPP%World	0.40333333	3.129	0.151	0.081	2.108	0.579	0.57733333	1.1666667	3.6356667
Investment	31.6210136	24.6236914	27.652429	32.595	31.84841	22.740771	31.5948751	23.049082	17.613667
Savings	20.93	31.915	22.59	24.05	22.03333	20.75	31.2033333	21.02	16.070333
Inflation	8.36	118.264	8.3425	12.2675	5.847	4.5996667	2.191	50.509667	4.0396667
Employment	6.62766667	10.73	13.1435	6.8685	16.26433	5.3606667	2.113	8.8	7.8466667
Population	10.1486667	146.0495	5.3675	1.997	40.23567	8.7266667	6.917	57.069667	58.219667
Gross External Debt	120.826667	180.91355	15.67505	11.9635	395.1167	210.64667	547.576667	92.442267	3103.17
CAB	-6.961	33.207	-2.0745	-0.342	-28.6603	8.4743333	19.767	-6.768333	-24.44367
CAB%GDP	-5.1773333	5.931	-5.0145	-0.198	-2.94267	2.1796667	6.841	-1.754	-1.542667
Poverty	19.96	22.31	21.055	10.055	19.32	6.937	8.48333333	24.356667	19.7
IR Short	9.17134583	16.4420839	9.0213532	5.8713	9.099403	7.6161739	3.70288657	61.978667	8.1705
IR Long	10.2868853	42.2364996	9.7571666	6.14483	9.420936	8.6543337	4.03131843	66.503	8.0609995
Exchange Rate	0.75654997	16.6566251	30.228104	1.21528	0.794332	7.2125404	1.54588478	527897.37	0.6006946

This table shows Summary Statistics for European Economies.

Table XVII. Summary Statistics European Stock Markets

Variable	Greece	BME Spain	Italy	Budapest	Cyprus	German	Irish	Istanbul	Ljubljana
Index Levels	2287.91	605.57	17908.89	14129.37	1468.55	4180.49	4109.8	15725.82	2950.57
Value Share Trading	52618.53	989371.39	670961.59	19268.49	1424.2	1576631.76	37334.37	109855.83	1143.44
Equity Market Cap	86041.82	582081.23	505993.08	23860.39	9315.04	965476.36	64523.15	82079.69	5731.31
Value BondTrading	48.63	2111172.45	1606232.14	1614.55	12.87	869816.57	93980	179980.45	407.61
Bond Market Cap	126261.26	957818.21	1594888.62	35187.88	5872.56	6969353.5	34889.08	91860.54	3539.63
Number Companies	246.15	2633.1	272.85	48.36	118.2	750.95	80.05	252.5	80.45
Stock Market Econ.	49.37	61.39	36.33	23.31	39.26	40.16	52.35	27.65	21.07
Capital Raised	8.74	12.11	4.58	0.25	5.03	2.76	9.05	6.27	10.98
Turnover Velocity	52.42	177.6	104.11	78.58	11.45	153.4	57.27	133.79	75.49
P/E Ratio	21.9	15.46	27.03	11.99	9.37	32.34	16.37	57.65	19.12
Gross Dividend Yield	4.8	2.69	3.14	2.66	3.13	2.66	2.18	2.56	3
Total Return	16.32	14.24	10.08	14.3	132.66	11.84	11.85	84.97	15.18
Index Performance	12.47	10.92	7.28	13.3	127.34	10.92	9.84	82.69	12.99
ForeignBondTradg	0	14.39	3078.44	5.99	0	51793.41	0	3962.45	0.02
DomesticBondTradg	49.54	2111158.06	1595898.79	1565.06	12.95	922031.29	93875.14	176835.62	407.79
ForeignEquityTradg	1840.26	4503.85	34205.45	18.85	0	142151.31	450.37	1.82	0
DomesticEquityTradg	50778.28	984867.54	685051.12	19257.27	1475.56	1434480.47	36883.97	109770.49	1032.41
ForeignEquityCaptl	0	0	0	0	0	0	0	0	0
DomesticEquityCaptl	3457.36	27565.55	11303.09	38.18	186.9	14990.18	2109.28	2078.97	909.17
ForeignBondCaptl	92.88	0	1217.88	7.99	0	36700.02	0.25	580.68	0.7
DomesticBondCaptl	14467.73	42824.86	361860.19	11929.85	1638.22	318035.99	5740.63	62778.24	969.35

This table shows Summary Statistics for European Stock Markets.

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Table XVII. Summary Statistics European Stock Markets

Variable	London	Luxembrg	Malta	Nordic	EuroNext	Oslo Bors	Swixx	Warsaw	Austria
Index Levels	2263.79	1188.14	2512.76	6746.48	7060.37	368.44	3850.29	19692.59	670.5
Value Share Trading	3480742.88	757.01	94.88	558960.71	2279805.24	128097.35	654790.05	20462.68	29053.88
Equity Market Cap	2130057.04	44522.28	2189.27	537732.57	1853372.14	102280.91	635186.29	48780.26	64520.12
Value BondTrading	2304763.6	1290.42	271.72	2023964.51	783423.37	125358.15	137402.9	876.29	832.19
Bond Market Cap	1809412.76	4031608.1	1924.19	670222.96	1626243.88	64560.06	300278.05	43750.74	188165.27
Number Companies	2666.75	280	10.82	638.9	1157.5	191.45	409.55	186.9	130.6
Stock Market Econ.	126.97	179.64	46.96	78.12	67	42.02	199.95	15.99	23.06
Capital Raised	13.36	30.12	15.91	6.63	11.47	6.89	6.99	2.97	5.92
Turnover Velocity	145.28	2.34	14.74	87.35	119.77	97.16	94.01	51.16	39.49
P/E Ratio	17.28	18.02	30.09	22.18	14.85	18.31	20.08	21.04	16.59
Gross Dividend Yield	3.56	2.88	2.9	2.22	2.86	2.63	1.91	1.74	2.09
Total Return	9.81	8.18	21.73	22.17	12.17	11.62	14.65	72.12	9.87
Index Performance	7.07	5.25	19.81	17.64	8.55	4.79	13.31	66.61	7.74
ForeignBondTradg	34632.87	1181.19	0.35	1145.66	40680.33	217.46	61516.65	1.54	66.96
DomesticBondTradg	2270130.73	105.86	271.36	2022818.86	742743.04	133384.27	75884.04	874.75	764.09
ForeignEquityTradg	1607884.12	15.04	0	40172.65	30803.71	16905.48	103284.1	474.21	916.83
DomesticEquityTradg	1867686.89	578.23	94.88	518788.06	2249001.53	111248.57	549824.76	19822.45	28136.57
ForeignEquityCaptl	0	0	0	0	0	0	0	0	0
DomesticEquityCaptl	42449.76	2048.75	224.59	7235.69	61691.5	3241.47	5606.83	1874.7	3214.54
ForeignBondCaptl	159405.25	823330.72	0	727.17	49750.27	157.65	27242.86	13.78	3689.74
DomesticBondCaptl	258972.54	31454.14	488.42	100910.66	476378.21	19606.36	15998.61	11011.27	36561.86

This table shows Summary Statistics for European Stock Markets.

Table XVIII. European Corporations in the Americas

Country	NYSE	NASDAQ	BMV	BOVESPA	TSX	TVSX	BSX	Total
Austria	1	0	0	0	0	0	0	**1**
Belgium	2	2	1	0	0	0	0	**5**
Channel Is.	1	1	0	0	5	1	0	**8**
Croatia	0	0	0	0	0	0	1	**1**
Cyrpus	0	1	0	0	0	0	0	**1**
Denmark	2	2	0	0	0	0	0	**4**
Finland	4	0	1	0	0	0	0	**5**
France	20	13	11	0	2	0	0	**46**
Germany	16	16	9	0	0	0	1	**42**
Greece	10	6	0	0	0	0	1	**17**
Hungary	1	0	0	0	0	0	0	**1**
Ireland	9	13	0	0	0	0	1	**23**
Isle of Man	0	0	0	0	0	0	1	**1**
Italy	12	2	2	0	0	0	0	**16**
Luxembourg	4	7	3	0	0	0	0	**14**
Netherlands	23	17	4	1	0	0	0	**45**
Norway	5	3	0	0	0	0	0	**8**
Poland	0	2	0	0	0	0	0	**2**
Portugal	5	0	1	0	0	1	0	**7**
Spain	6	2	3	1	0	0	0	**12**
Sweden	2	12	1	0	1	0	1	**17**
Switzerland	13	5	8	2	2	0	1	**31**
Turkey	1	0	0	0	0	0	0	**1**
UK	72	68	20	0	17	11	7	**195**
Total	**209**	**172**	**64**	**4**	**27**	**13**	**14**	**503**

This table shows European Corporations in the Americas.

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