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European Economic Integration in the Context of Globalization

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Abstract

This paper examines the impact of European Integration in the context of globalization on correlations between stock market returns. Furthermore, it looks at the impact of globalization in periods of crisis on stock market correlations of developed nations of Europe, US and Japan. The methodology used is a simple calculation framework based on the correlation coefficient. The results show that stock market integration in Europe has increased substantially in recent years though it is not yet complete. Moreover, stock markets correlation between Europe,Japan and the US is stronger than ever and is likely to continue to grow. This is more noticeable for the NIKKEI index which recently is very clearly affected by the movement in other major markets. Equity portfolios on developed countries cannot be constructed on the basis of a country allocation strategy anymore.

1. Economic Integration Goes through Globalization?

In the last ten or twenty years many developing countries have joined the industrial nations in allowing free capital inflows and outflows as well as more liberal trade policies. This "globalization" of the economy was welcomed.

The world's financial markets are fast becoming more integrated, as business and government increasingly acquire operating funds in different national markets, and foreign participants increasingly attempt to profit by investing in other domestic markets.

Financial institutions need and accept technologically advanced global operation information systems to support global operations and transactions. Some financial institutions have taken the globalization trend to heart and have exposed themselves to the vagaries of foreign markets completely, while others continue to follow more traditional international banking schemes.

Whatever the choice of the individual management, it is a rather safe bet that the general trend will continue, aided by the increase in regional trade and economic agreements such as EC-92, as well as the emergence of the Eastern European nations and the nations of the former Soviet Union into market oriented economies.

One of the characteristics of globalization is that the financial markets and their participants witness constant change and innovations. These changes have caused an explosion of investment opportunities. For one, the growth and devel-

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opment of numerous foreign financial markets such as those in Japan, the United Kingdom and Germany have made these markets accessible and viable for investors around the world. Numerous investment firms have recognized this opportunity and established and expanded facilities in these countries. New financial products appeared in the world-developed markets such as swaps, forwards, futures options and others that increased on the one hand liquidity and on the other volatility.

Moreover, recent developments in the EU have revived the debate about the consequences of European integration, the scope and depth of it. In the past two years, member states have ratified the Maastricht Accord, which envisages a common currency and central monetary authority by the beginning of the 2000 decade. We refer to economic integration as a state of affairs where there is a removal of discrimination between the economic agents of the member countries and the formation and application of the coordinated and common policies on a sufficient scale to ensure that major economic and welfare objectives are homogeneously fulfilled.

More specifically, in the case of European integration as far as the economic part is concerned, we will have in the future the European monetary Union (EMU). EMU will lead to permanently fixed exchange rates and one interest rate for all participating countries. This implementation of the EMU, with permanently fixed exchange rate and a single European interest rate, should align the movements of the individual national European stock markets even more in the near future. Monetary Union is also having another influence on the European stock markets. The drive towards a single European currency is harmonizing fiscal and monetary policies that lead to synchronization of the business cycles of the individual European countries.

Even though many European companies are already involved in activities across Europe in the recent years, there are still some important differences between the existing conditions and the future conditions of the EMU. Today, differences exist in politics, tax and legal systems, and semi-demographic developments. A reason also for keeping European stock markets apart, is the different industry mixes represented in the individual national stock markets. For example, in the Greek stock market, the Banks and some light industries have the main role. On the other hand, in Germany and the United Kingdom, some heavy industries have the main role that are highly affected by the business cycles.

In this paper we are going to analyze the correlation structures among the EU member countries stock exchanges in the context of European Integration, and further their relationship with the US and the Japanese stock markets in the context of Globalization.

2. Evidence of European Integration

Before analyzing the European stock market structure and its response towards the European integration, we are going to examine the economic integration process. We do not examine microeconomic variables or we consider them insignificant for the purpose of this paper because many studies have shown that examining industry factors are not helpful in understanding levels or changes in

cross-country co variances. A recent paper by King, Sentanaa and Wadhwani(1994) uses monthly stock returns to document this. Other authors have come to similar conclusions. In particular, after investigating the impact of macroeconomic variables ,Von Furstenberg and Jeon(1989) looked at industry effects using weekly data and found little evidence that industry effects help us understand the covariances better.

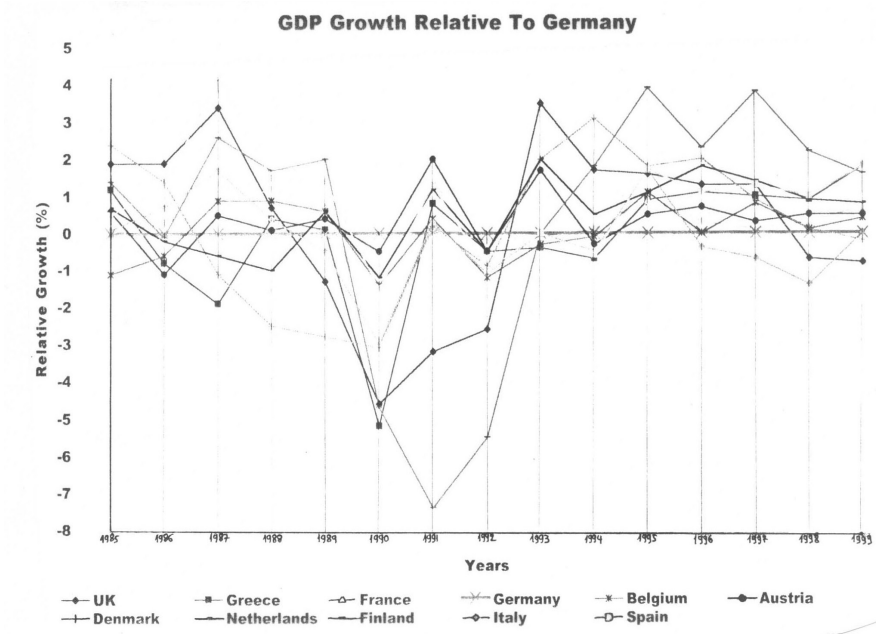

Figure 1

Using a different approach, Ammer and Mei(1994) found that most of the covariance between national indices is explained by co movement across countries in common stock risk premia rather than by co movement in fundamental microeconomic variables.

Let us look at some important macroeconomic variables such as GDP growth, Inflation and exchange rates for the United Kingdom, Greece, France, Belgium, Austria, Denmark, the Netherlands, Finland, Italy and Spain relative to Germany. Also the aforementioned countries in relation to the U.S. economy.

In figure 1, we have the GDP growth relative to the German one. It is apparent that since 1985 the differences between the European countries have dramatically narrowed down. More specifically we distinguish three different periods. The first is from 1985 till 1989,when the European relation is very much dispersed, meaning that there is very low integration.

The second period is from 1989 till 1993 when the German reunification occurred. In that period, the German growth rates were pushed far above the average, while the other European economies were stagnating.

This is shown in the diagram through the high growth gap between Germany and the other EU countries. The third period lasts from 1993 till today. In this period we have a normalization of the European growth rates. All the countries have a more or less similar growth rates that leads to the conclusion that there is a higher integration between the EU countries.

In Figure 2, we have the GDP Growth relative to the US. We observe that since 1985, the differences between the EU countries and the US have also lessened. From 1985 till 1994 the picture concerning differences in GDP growth is not very clear . Large gaps existed among the two growth rates especially in 1987 and in 1991-1994. The year 1987 as known it is marked by the Dow Jones crisis while in 1992 there was the crisis of the British Pound and in 1994 the crisis of the Mexican Peso.

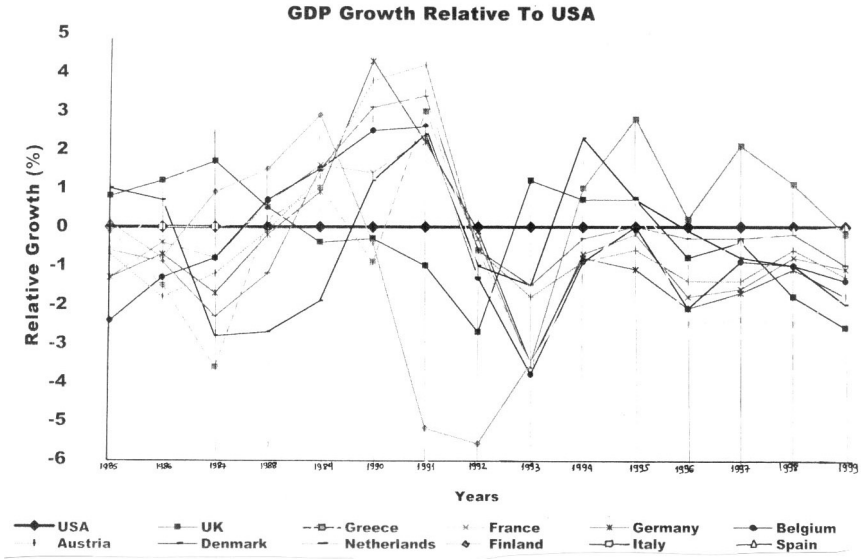

Figure 2

From 1994 until today the EU growth rates are more integrated with the US respective rates, but are not as much integrated as among the EU member countries. This is because the US economy has grown faster in the last five years in comparison to European economies.

In Figure 3 we have inflation rates of the EU countries relative to German inflation. As shown in the diagram some European countries such as Greece, Spain and Italy suffered high inflation rates from 1985 until 1993, compared to other European countries. We observe that when the German reunification

occurred, the demand increased and pushed inflation to higher levels than before(demand pull inflation). Since 1993,the dispersal started to decline even more. Recently, rates are very low, showing that the EU countries are very much integrated with respect to this macroeconomic variable of the economy.

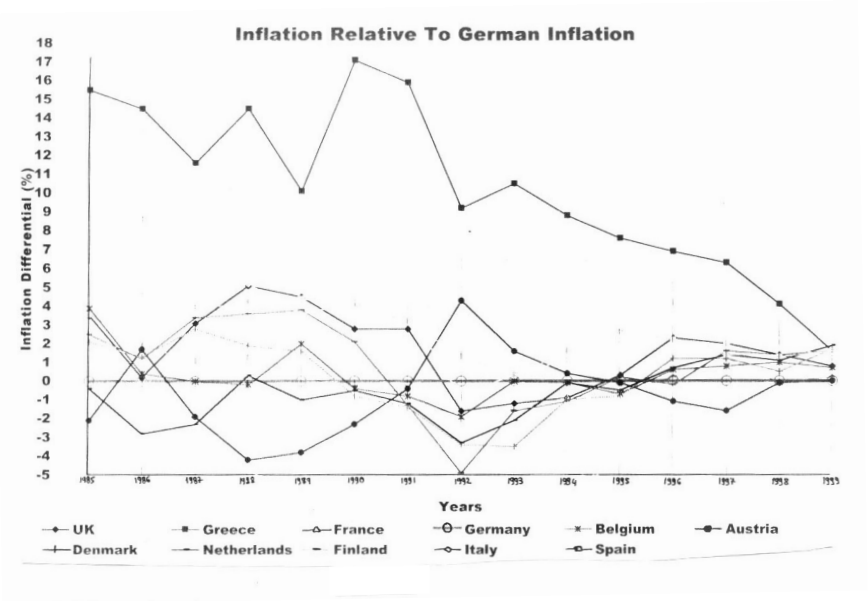

Figure 3

In Figure 4, we have the EU countries inflation rates in relation to US inflation rate. This diagram shows a high integration level for the last 10 years, excluding Greece, where inflation convergence occurred within the last two years.

So integration during the 1990s decade gets to be greater between the US and the EU member countries, something that is expected if we take into account the economic development that takes place in recent years in Europe and the US.

As far as exchange rates are concerned with respect to European integration, serious problems appeared in 1992 when some European countries could no longer sustain the restrictive monetary policy pursued by Bundesbank to combat German inflation. The currency fluctuations, which had abated during the 1980s broke out again. During the currency crisis, the German mark appreciated considerably bringing currency volatility up to levels last experienced in the beginning of the 1980s.These events disrupted convergence only temporarily because by the end of 1993 the effects of German reunification had stopped, leading GDP growth ,inflation and exchange rates at a new lower record.

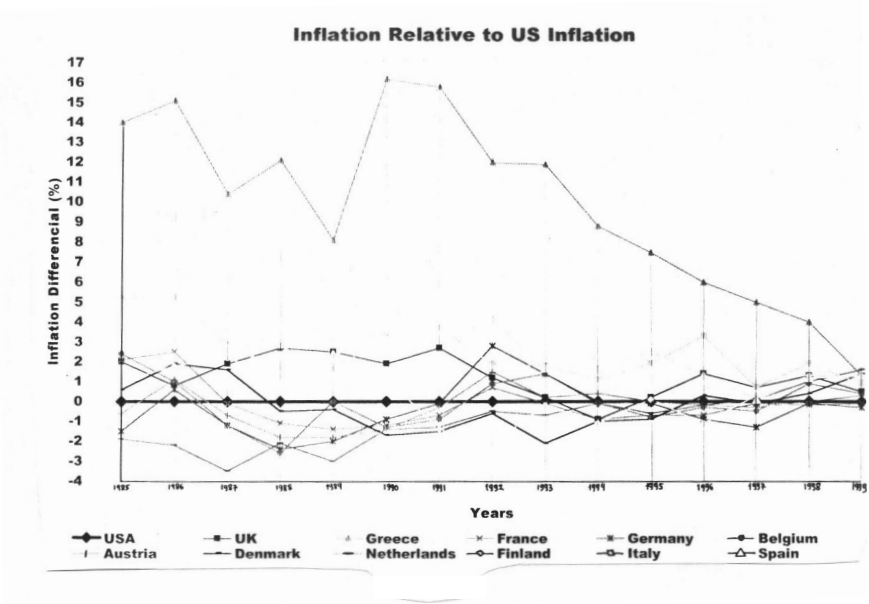

Figure 4

In Figure 5,we have a diagram showing the relation between the EU countries currencies and the US Dollar. We notice that some problems existed between 1991 and 1993 because of the German depreciation and the low exchange rate of Finnish, Italian ,Greek, Spanish and English currencies. By the beginning of 1994 and until 1997 we have some fluctuations between the EU currencies and the US Dollar, caused by depreciations that took place in some European countries in order to follow the European Monetary Union's criterion of low inflation rates. From 1997 till today we have more stabilized exchange rates, which are now in a very low level, even though it cannot be said they are much integrated.

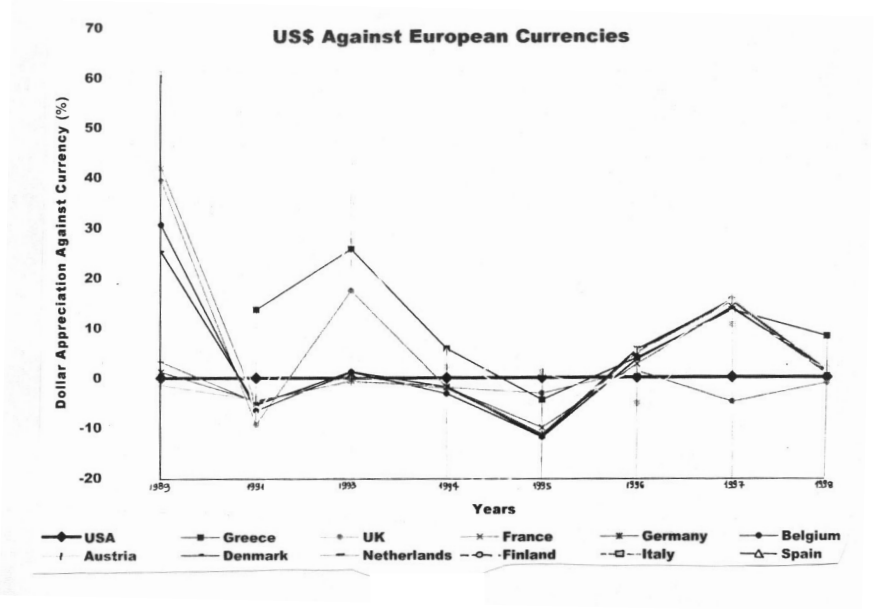

Figure 5

3. Stock Market Correlations

If the European stock markets were totally integrated then, national factors would have disappeared. The returns of the individual European stock markets would be determined only by a Pan-European factor and by company specific factors, and the patterns of the national European stock markets would be largely indistinguishable. Correlations between markets would tend towards one. The same would hold true in the case of the European stock markets and the Dow Jones Industrial Index. In this case the European and US stock markets would be determined only by a Pan-American and Pan-European factor.

In this section of the paper we will describe how correlations between European stock markets have been moving during the last recent years. Also we will see how much these European markets are correlated with the US through the Dow Jones Industrial Index.

Data for the empirical analysis covered the period January 1990 through October 1999. The frequency for all data series was weekly (week end values were used).

Table 1: *European markets' annual correlation with DAX*

Years	FTSE	ASE	CAC	BEL20	AUSTRIA	DENMARK	NETHERLANDS	FINLAND	ITALY
1990	0.610	0.693	0.942	0.506					
1991	0.793	0.062	0.782	0.607					
1992	-0.07	0.780	0.863	0.888	0.687				
1993	0.958	0.830	0.929	0.968	0.975	0.934	0.938		
1994	0.354	0.313	0.577	0.735	0.393	0.294	-0.04		
1995	0.806	0.761	0.107	0.817	0.096	0.839	0.789		
1996	0.865	-0.25	0.820	0.674	0.502	0.938	0.946		
1997	0.929	0.757	0.953	0.961	0.863	0.891	0.982	0.216	0.229
1998	0.721	0.720	0.945	0.741	0.713	0.732	0.926	0.742	0.833
1999	0.498	0.504	0.826	-0.37	0.391	0.465	0.877	0.753	0.269

Table 2: *European markets' correlation with DAX between 1997-1999*

Years	FTSE	ASE	CAC	BEL20	Austria	Denmark	Netherlands	Finland	Italy
97-9	0.905	0.688	0.927	0.917	0.221	0.882	0.129	0.693	0.888

Table 3: *European markets' correlation between 1997-1999*

97-99	FTSE	ASE	CAC	DAX	BEL20	Austria	Denmark	Netherlands	Finland	Italy
FTSE										
ASE	0.771									
CAC	0.938	0.883								
DAX	0.905	0.688	0.927							
BEL20	0.839	0.637	0.889	0.917						
AUSTR	0.073	-0.28	-0.05	0.221	-0.03					
DENM	0.772	0.441	0.726	0.882	0.774	0.366				
NETHE	-0.15	-0.51	-0.20	0.129	0.08	0.631	0.360			
FINLA	0.853	0.951	0.928	0.693	0.621	-0.381	0.272	-0.659		
ITALY	0.906	0.663	0.911	0.888	0.865	-0.097	0.686	-0.221	0.773	
SPAIN	0.642	-0.42	0.085	0.316	0.448	0.359	-0.275	0.471	0.004	0.485

As Tables 1,2 and 3 show correlations have changed during recent years. We observe that since 1997, with the Maastricht Treaty,they have become much stronger.

The highest and the lowest correlations reveal that the English, French and German stock markets are the most integrated markets in Europe whereas the Austrian, Belgian and Finnish are the least integrated.

These results were expected because the English, French and German economies are the most powerful in the European Union, their central banks are interrelated because their monetary policy has a very strong effect in the whole European economy. On the other hand the markets with low correlations are countries where national policies have a greater impact on the stock market and companies focus mainly on the local market.

This would disappear with the launch of the EMU when all countries will be forced to focus also in other markets.

Figure 6 shows the neutral correlation between the EU stock markets and the DAX. The correlation between the German and the other European markets is high during the last 3 years,in comparison to the years previous to 1996.

More specifically, the correlations in 1993 were very high (more than 80%) followed by a decline in 1994. Since 1997 correlations have steadily risen as a result of a stronger co-movement of the European monetary policy.

Although the increase in correlations in Europe is remarkable development is not yet complete. In Figure 6 we notice a great deal of volatility among correlations, stability is not something easily achieved.

Only very strong markets such as Germany, France and the United Kingdom are highly integrated. The other weaker countries are under the process of development and look forward to integrate more their stock markets in the near future, when they will enter the European Monetary Union.

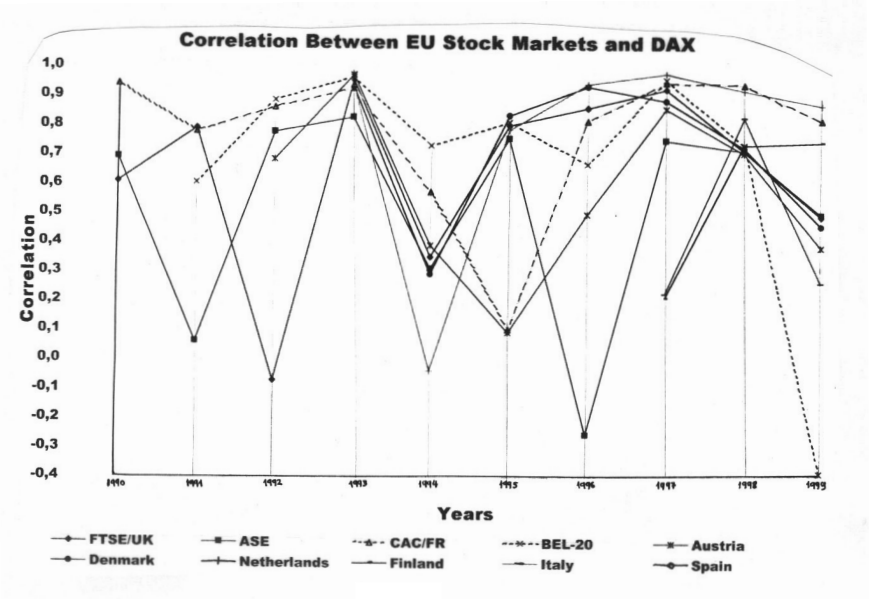

Figure 6

4. Greece "Is Getting Bigger'

Greece's growth is relatively strong ,with the economy in its seventh year of expansion. GDP growth is projected at roughly 3 ½ percent in 1999, a rate in excess of EU average for a fifth consecutive year. In the year 2000 the growth

rate is expected to exceed 4%. Activity is being led by high rates of investment, and brisk consumer lending has sustained consumption. Export performance has also strengthened, reversing a protracted decline in market shares, and contributing to a projected slight improvement in the current account deficit. The prolonged recovery has failed however, to dent still high unemployment. Experts anticipate that growth will strengthen further,to some 3 ´Y percent,in 2000. Unemployment is high close to 11 percent of the total labour force. Greece's big bet is the anticipated entrance in the group of the European Union. The only difficulty it faces is the high inflation rate (3.2%) for September 2000.

5. The Non-Synchronous Trading Periods

The problem of the non-synchronous trading periods for different markets around the globe is particularly important when focusing on links between Japan and US since the two markets are never open the same time. The diagram below shows the above argument.

	TOKYO TRADING HOURS		
7pm	2am	7pm	2am
DAY t-1	**DAY t**		**DAY t+1**
	9.30 am	4pm	
	NEW YORK TRADING HOURS		

Note: *Overnight timing conventions for a 24 hour period (day t) set the trading day in Tokyo to precede that of New York.*

6. Market Crisis

The largest increase in correlations globally among the countries under examination occurred in periods of large negative returns, such as the crush of 1987,the Kuwait crisis of 1991 and the Asian crisis of 1997.

During the sharp decline in the Dow Jones Industrial Average on Friday, October 16th 1987, pessimism ran high in Europe, and was intensified by the

Threat of the Treasury Secretary at the time, James Baker to let the dollar decline in relation to European currencies. As Japanese and European downward market pressure(more sell orders than buy) mounted over the weekend prior to the opening of NYSE ,it became evident that the global market system was in for rough days. Records show that the DJIA 'Market Meltdown' resulted in a decline of 508 points on Monday, October the 19th,1987,with smaller movements occurring for several days thereafter. The same happened with the Asian crisis and probably worse.

Table 4 shows that over the whole period under examination 1985-1999 the Japanese stock exchange is negatively correlated with Dow Jones and the English FTSE. To the contrary DJ and FTSE seem to be extremely positive correlated with each other.

Table 4: *1985-1999 period*

	Nikkei	DJ	FTSE
Nikkei	1		
DJ	-0.33	1	
FTSE	-0.31	0.99	1

If someone examines last year's relationship between the above indicies he will find totally different results. As it is illustrated in Table 5 Nikkei is positively related to all other indicies which means that trends are about to change in recent years.

Table 5: *1999 data*

	Nikkei	DJ	FTSE
Nikkei	1		
DJ	0.87	1	
FTSE	0.54	0.67	1

7. 1987 Crisis

After October 19 1987 where DJ faced a mini crash we see that the rapid decrease in the DJ index has affected somehow Nikkei and resulted to a big change in the correlation structures,which became all positive(Table 6)while prior to the crisis Nikkei was negatively correlated with DJ.

Table 6: *1987 crisis*

	Nikkei	DJ	FTSE
Nikkei	1		
DJ	0.52	1	
FTSE	0.63	0.92	1

8. 1991 Persian Gulf War

Table 7 has been created from the Persian Gulf War until the end of 1992. As it is clearly shown all the major European Stock Exchanges move together with the US DJ. To the contrary Nikkei behaves like a substitute market and it is very interesting to see the size of the negative correlation between the American and the Japanese markets.

Table 7: *Persian golf war*

	Nikkei	DJ	FTSE	CAC	DAX
Nikkei	1				
DJ	-0.76	1			
FTSE	-0.30	0.65	1		
CAC	-0.23	0.68	0.71	1	
DAX	-0.21	0.60	0.53	0.88	1

9. 1997 Asian Crisis

In 1997 people started to realize that markets are not as they used to be. It was obvious that all markets are somehow linked together . Table 8 explains very clearly what is happening. We see again the Japanese stock exchange to be positively correlated with some European markets and no correlated with others.

Table 8: *The Asian crisis*

	NIKKEI	DJ	FTSE	CAC	DAX	BEL20	Austria	Netherlands
Nikkei	1							
DJ	-0.09	1						
FTSE	-0.24	0.89	1					
CAC	0.01	0.88	0.91	1				
DAX	-0.08	0.92	0.93	0.95	1			
BEL20	0.02	0.89	0.88	0.93	0.96	1		
Austria	0.21	0.85	0.81	0.89	0.86	0.85	1	
Netherlands	-0.01	0.93	0.90	0.95	0.98	0.97	0.90	1

10. 1997-Today

In our last period under examination, that is from 1998 until today we see that all the markets in the world are not only positively linked but also in high degree(Table 9). It is very noticeable that Nikkei and DJ are positively and highly correlated. In this last table we have included Greece, which as we can see reacts similarly to the other European countries. We can easily argue that the reason behind Greece's co movement with developed markets is the anticipation for the entrance to the EMU. Another argument is that finally Greece has developed into a mature market.

Table 9: *1997-Today*

	Nikkei	DJ	FTSE	CAC	DAX	Austria	Netherlands	ASE
NIKKEI	1							
DJ	0.87	1						
FTSE	0.54	0.67	1					
CAC	0.82	0.78	0.39	1				
DAX	0.62	0.73	0.53	0.82	1			
Austria	0.56	0.72	0.86	0.37	0.47	1		
Netherlands	0.68	0.86	0.65	0.80	0.89	0.64	1	
ASE	0.72	0.58	-0.04	0.82	0.47	0.07	0.50	1

Figure 7 shows the correlation between the EU stock markets and Dow Jones Industrial Index. The correlation between the American and European markets is also high during the last three years, in comparison to 1996 and before. The correlations in 1993 were very high(more than 70%) followed by a decline in 1994. From 1997 till today the correlations are higher than the previous years, as a result of a stronger co movement of the European and American monetary policy.

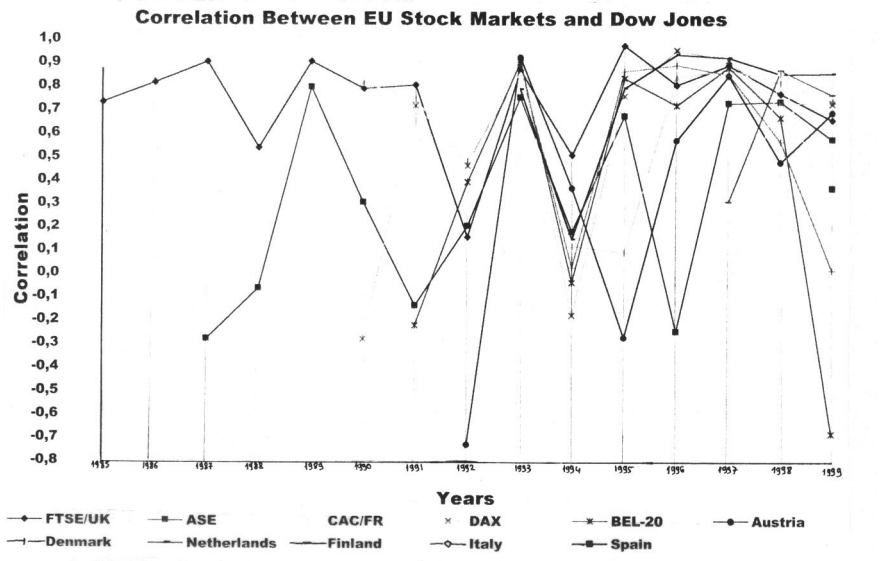

Figure 7

Conclusion

By no means we claim that all systematic risk in the return patterns of these countries has disappeared. Thus the hypothesis that the systematic differences in return patterns have disappeared can be rejected, thus at present country and firm factors still have a role to play. However from our investigation we have evidence to believe that the correlation structures between developed countries has increased significantly during the last fifteen years. We strongly believe that this is a direct result of the globalization of financial markets and the increasing trend for markets to interact. Already many new indices appeared in the markets that include stocks from different markets. Additionally there are plans for the near future from different regional markets to create single common stock exchanges.

Furthermore, the evidence provided supports the view that European Economic Integration goes hand in hand with globalization.

Global development is responsible for the fact that increasing correlations have two significant consequences for fund managers of equity portfolios.

First, their ability to reduce overall portfolios risk through diversification among countries has been reduced significantly over the years. Secondly and more importantly, the active portfolio managers will have increasing difficulty adding value by using top down strategy through country allocation. This is to sell high in one country and invest in another country where prices are low.

To conclude, this finding confirms the common wisdom that in periods of crisis, when investors need the shelter of diversification most, international diversification will let them down.

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