

## **Decoupling and Re-coupling Hypothesis During EU Financial Crises**

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### **Abstract**

*In the literature, the decoupling hypothesis means that some countries would not be affected by the dynamic of economic crises which emerge in large-scale economies and would maintain their rate of economic growth. This hypothesis has been promoted during the global financial crisis which arose first in the USA and then spread nearly all over the world. Nowadays, as some economies have lowered their dependence on developed economies, this may be considered as an evidence of the validity of this hypothesis. However, it is observed that economic growth in developing countries does not slow down as much as in developed countries, but also developing countries have a delayed and relatively small economic contraction: in the literature this hypothesis is called re-coupling. In this study, we aim to examine the differences between the start of the crisis in Europe and their recent dynamics today are examined within the framework of these hypotheses.*

*Keywords: Decoupling, Re-coupling, EU, Financial crisis*

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### **1. Introduction**

Economies which have been developing since early 1990's have rapidly become integrated with international financial system. Hence, financial integration accelerated trans-frontier capital inflows to these developing economies. On the other hand, as the companies expanded overseas, a portion of their activities at home was moved to the international markets. As the capital increased, stocks of the companies started to be traded in foreign markets in addition to domestic markets. This process of financial integration supported the idea that distribution of risks across the world would affect growth positively (Yeyati et al., 2008). However, distribution of risks also causes a contagion problem. The crisis which broke out in 2008 in America, and expanded to Europe is a good example.

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When we look at global crises, such as the 1997-98 Asian and the 2008 global crises, the excessively high prices (booms in stock and property markets) are seen as common crisis determinants. Another common feature of these crises is the fact that their negative effects on economies are not local but spread other countries.

The crisis that arose in the US mortgage market in 2007 rapidly affected Europe. It first started in Iceland and spread then all over Europe, influencing particularly Hungary, Greece, Italy, Spain, Portugal, and the UK. The increase of the systematic risks in the global markets gave rise to the credit crunch, and as a result of this, non-financial markets were affected by this crisis. Two factors are considered to be the reason for the fact that the crisis transformed into a debt crisis in Europe. The first of these is the structural errors in the construction of the monetary union, and the other is the economic problems experienced in the region in the period of 2007-2009.

In that context, the assumption of "decoupling", which is based on the fact that developments in the US economy will not be followed by other economies, refers to the divergence of business cycles from different countries, and "re-coupling" corresponds to convergence.

The hypothesis of decoupling is also based on the idea that strengthening regional ties might help cushion emerging Asian economies in the middle of a slowdown in the USA and other advanced economies. There is little doubt that emerging Asian economies are gradually integrated through growing intra-regional trade, investment, and financial links. The rapid spread of intra-regional trade suggests that the Asian economy has strengthened its regional economic ties. At the same time, the relative decline in its trade with the rest of the world suggests that Asia's reliance on external trading partners might be decreasing (Kim et al., 2009).

The decoupling hypothesis has its origins in the exceeding successes of the economies of China and India whose high growth rates do not seem to be influenced by the parlous state or the shocks sustained by them. A few years ago, it appeared as if the decoupling hypothesis could be applied, not only to certain Asian countries, but also to describe the performance of certain Latin American countries like Brazil. Indeed, some Latin American countries started to grow faster than the US economy and their growth path now seems to have become independent of the economic situation in the USA

However, decoupling may indicate other economic realities. As stressed by Dervis (2012), first of all decoupling may show the divergence of the long-term GDP growth path between emerging and advanced economies. However, according to many macroeconomic models, such as Solow's growth model, economies which are catching-up with larger ones should have higher rates of growth. Hence, long-term higher growth rates in emerging economies are not indicators of growing differences between advanced and emerging economies. Secondly, decoupling can mean the growing

differences between business cycles and the reaction to global shocks. Dervis (2012) calls it “delinking of cyclical movements”, which is the most common feature of decoupling hypothesis (Wyrobek and Stańczyk, 2013).

## **2. Decoupling and Re-coupling in the Literature**

International business cycles literature mostly focuses on developed countries. Studies including both developed and developing countries started mostly along with globalization. New structure of the world’s economy has important impacts on the worldwide business cycles. Increasing weight of the developing countries in trade volume, in particular, among the Asian countries, caused faster global growth. Despite the globalization trend, business cycles in industrialized countries and developing economies have remained independent from each other until now. This is referred to decoupling in the recent literature (Fidmuc and Korhonen, 2009).

The global financial crisis in 2008-2009 reshaped the debates of "decoupling". It is not a question of whether emerging Asian economies can weather the US slowdown or global recession anymore. Precipitous falls in exports and production across developing Asia in response to a sharp decline in demand in major industrial countries was a solemn reminder that the region's rapidly integrating economy remains strongly tied to the fate of the global economy. Nevertheless, the problem of decoupling remains highly contentious. In a narrow scope, it is now an issue of whether emerging Asia can manage an independent recovery from the effect of the global financial crisis and recession. However in a broader sense, it is relevant to the changing nature of macroeconomic interdependence between emerging Asia and the rest of the world (Kim et al., 2009).

For the purpose of supporting the explanations above, several studies adopt dynamic factor models that can deconstruct an economy’s output fluctuations into contributions by different factors, including global, regional, and country-specific factors. Moneta and Ruffer (2006) calculate various specifications of a dynamic factor model for the output of 10 East Asian economies and find a significant common factor in their business cycles. Particularly, a considerable part of the common factor is the result of co-movement in exports which, in turn, is attributed to a number of exogenous factors such as the oil price and JPY/USD exchange rate. But, they discover that Asian output is only weakly affected by developments in industrial countries (Kim et al., 2009).

These studies show that economic and financial shocks which emerge in economies spread to other countries rapidly. In particular, the interaction is observed more intensively between countries which have dense commercial and financial activities. Trouble in the US economy causes even bigger trouble in other economies due to the volume of the US economy. World trade is estimated to be about USD18 trillion and the US realized itself USD4 trillion of that. As the old adage goes, “when the US sneezes, the

rest of the world catches a cold". Is this still true? There has been an ongoing debate about whether developing economies have decoupled from advanced economies, in the sense that in recent years, the business cycle of emerging markets has become more (or fully) independent from the business cycle of advanced economies. Proponents of the decoupling view argue that emerging markets have made significant progress in reducing external vulnerabilities, strengthening domestic policy frameworks, and achieving stronger domestic demand growth, thereby leading to lower business cycle co-movements with developed economies. The decoupling opinion is difficult to reconcile with the significant empirical evidence supporting the hypothesis that trade and financial integration lead to greater business cycle synchronization (Walti, 2009).

For instance, Dooley and Hutchison (2009) find that emerging markets seem to have been largely insulated and decoupled from developments in US financial markets from early 2007 to summer 2008. However, emerging markets have responded very strongly to the deteriorating situation in the US financial system and real economy. Policy measures taken in developing markets to insulate themselves against global financial developments proved inadequate in the face of strong international recoupling of the global financial system. In the same study, Dooley and Hutchison (2009) also find that Mexico has been more closely linked with the US market since the fall of 2008 than before. But this may not be representative of the broader group of developing markets.

Besides, the decoupling hypothesis is also rejected by Walti (2009). Conducting calculations for 34 developing markets and 29 developed economies, he examined GDP deviations from its long-term trend. In the study, the Hodrick-Prescott filter and spectral analyses were used for the period 1980–2007. Overall, he finds no supporting evidence for the decoupling hypothesis. The results are consistent with the growing evidence showing that globalization tends to promote business cycle synchronization (Walti, 2009).

The early empirical literature which mainly focused on developed countries indicates that increasing trade intensity leads to increased business cycle synchronization (Frankel and Rose 1996). More recent work on emerging markets shows nevertheless mixed results. Agenor et al. (1999) and Calderon et al. (2007) found an increase in output correlations over time while Fidmuc and and Korhonen (2009) found evidence of decoupling. Chan and Khong (2007) found that Asia-Pacific economies tend to be more correlated with Japan than the USA. Studies such as Kose et al. (2002) found that increased trade and financial liberalization adds to contagion of macroeconomic and trade shocks. The findings of Kose et al. (2008) suggest evidence in favor of decoupling between industrialized and developing economies.

In particular, decoupling is examined: (i) in the traditional sense, namely, business cycle synchronization and sensitivity to the world economy (real decoupling); and (ii)

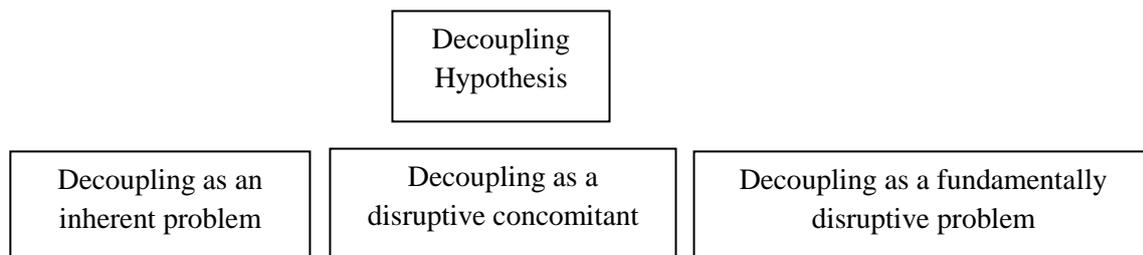
as cross-market financial interdependence (financial decoupling), in the sense of the “betas” of EM credit, equity and currency. Finally, the debate is centered around EM financial integration to the world (as the deepening of financial capital inflows) and its impact on financial ties of EM assets to those in the developed world (Yeyati and Williams, 2012). They found that: (i) on the real front, rather than actually decoupling from the world, developing countries have diversified away from the US and the Eurozone; (ii) on the market front, despite the real decoupling, the co-movement between EM and global assets (as measured by the EM betas to developed markets return) rose in the late 2000s, even before the 2008-2009 crisis.

**Table 1. Typical argumentation pattern for the decoupling hypothesis**

<b>“Ultimate causes”</b>	<b>“Superficial” characteristics of decoupling</b>	<b>Consequences for the financial sector</b>	<b>Consequences for the real economy</b>	<b>Economic policy measures</b>
<ul style="list-style-type: none"> <li>-Liberalization of financial markets</li> <li>-Internationalization of the real economy</li> <li>-Increasing financing disequilibrium</li> <li>-Unproductive use of capital</li> <li>-Falling transaction costs</li> <li>-Decision horizon shrinks</li> </ul>	<ul style="list-style-type: none"> <li>-Financial assets ratio increases.</li> <li>-Financial turnover ratio increases</li> <li>- Financial assets coefficient increases</li> <li>-Credit volume rises more sharply than value added</li> </ul>	<ul style="list-style-type: none"> <li>-Financial market prices diverge more strongly from fundamentals</li> <li>-Increasing financial market price volatility</li> <li>-Financial sector stability drops and susceptibility to crisis rises.</li> </ul>	<ul style="list-style-type: none"> <li>-Distorted financial market prices (e.g. interest rates)</li> <li>distrust real allocation</li> <li>-Volatility and instability increase</li> <li>risk premium (e.g. real interest rates rise)</li> <li>-Distorted output structure</li> <li>-Lower output level</li> </ul>	<ul style="list-style-type: none"> <li>-Tighter supervision</li> <li>-Fixed Exchange rates</li> <li>-International coordination</li> <li>-Tobin tax</li> </ul>

**Source:** Menkhoff and Tolksdorf (2001).

**Figure 1. Three main approaches for decoupling hypothesis**



Market instability	Short-term speculation	“Emancipation” of the financial markets
Credit expansion	Changes in financing behavior	Speculative price bubbles
Interest/profit rate	Commanding financial sector	Asset price inflation
Lack of savings capital absorption	Deregulation	
	Resource drain	

**Source:** Menkhoff and Tolksdorf (2001).

**Table 2. Literature on decoupling-recoupling**

<b>Business-cycle fluctuations</b>			
	<b>Period</b>	<b>Method</b>	<b>Main focus</b>
Mc Connell and Perez-Quiroz (2000)	1953-1999	Markov-switching	A structural break in the volatility of US GDP growth
Dalgaard, Elmeskov and Park (2002)	1960-2000	Hodrick-Prescott (HP) filter	Influences on business cycles.
Bordo and Helbling (2010)	1880-2001	Wilcoxon Rank sum tests	Evidence on the synchronization of business cycles across 16 countries
Doyle and Faust (2005)	1960-2002	Single vector auto regression (VAR)	Business-cycle properties of economic activity in industrialized economies
<b>Real Decoupling</b>			
Kose, Otrok and Prasad (2008)	1960-2005	Dynamic factor model	Evolution of the degree of global cyclical interdependence
Walti (2009)	1980-2008	OLS	Interdependence among countries
Fidmuc and Korhonen (2009)	1990-2008	USA Census Bureau's X12 ARIMA	Transmission of global financial crisis to business cycles in China and India
Kim, Lee and Park (2009)	1990-2007	Panel VAR	Degree of real economic interdependence between emerging Asia and major advanced countries
<b>Financial Recoupling</b>			
Balakrishnan et al. (2011)	1982-2002	Case study analysis	Effect of financial turmoil in advanced economies on emerging markets
Dooley and Hutchison (2009)	2007-2009	OLS	Transmission of the US subprime crisis to emerging markets
Frank and Hesse (2009)	2003-2008	Dynamic Conditional Correlation (DCC) GARCH	Financial interlinkages between advanced and emerging countries
Yeyati and Williams (2012)	2000-2010	OLS	A decoupling from the business cycle of advanced countries
He and Liao (2012)	1981-2008	Structural VAR	Role of the global factors
Mink, Jacobs and de Haan (2012)	1970-2008	USA Census Bureau X-12-ARIMA	Multivariate measures of synchronization and co-movement of business cycles

**Source:** Created by authors.

This study aims to find whether and how these financial spillovers affect the "real" economy which is measured by GDP, investment, and household consumption. Here, the answers are less clear. So far, there seems to be a split between real and financial variables in developing markets. Stock markets plunge and recover rapidly, while declines and increases in output growth are much more moderate. Given developing economies' potential for economic growth, it is reasonable to expect that the gyrations of equity markets will have little effect over the long term as stated by Prasad and Kose

(2009). See Table 1 and Figure 1 above for a systematic presentation of the decoupling hypothesis.

Most studies (illustrated in Table 2) on the decoupling hypothesis present that the variability of financial prices has numerous negative effects on the financial structure and the real economy. For instance when the price of financial assets increases, financial variability also increases that affects then the real economy.

### 3. Decoupling and Re-coupling for the EU Countries

In order to show decoupling or re-coupling between the US economy and the EU member countries (hereafter EU-27), we use some macroeconomic variables such as exchange reserves, export and import volumes.

Figure 2 presents changes in foreign exchange reserves stock in the EU-27 and the USA. As seen in Figure, changes in foreign exchange reserves among countries follow similar trends.

**Figure 2. Changes in reserves stock from 2003 to 2015 (%)**

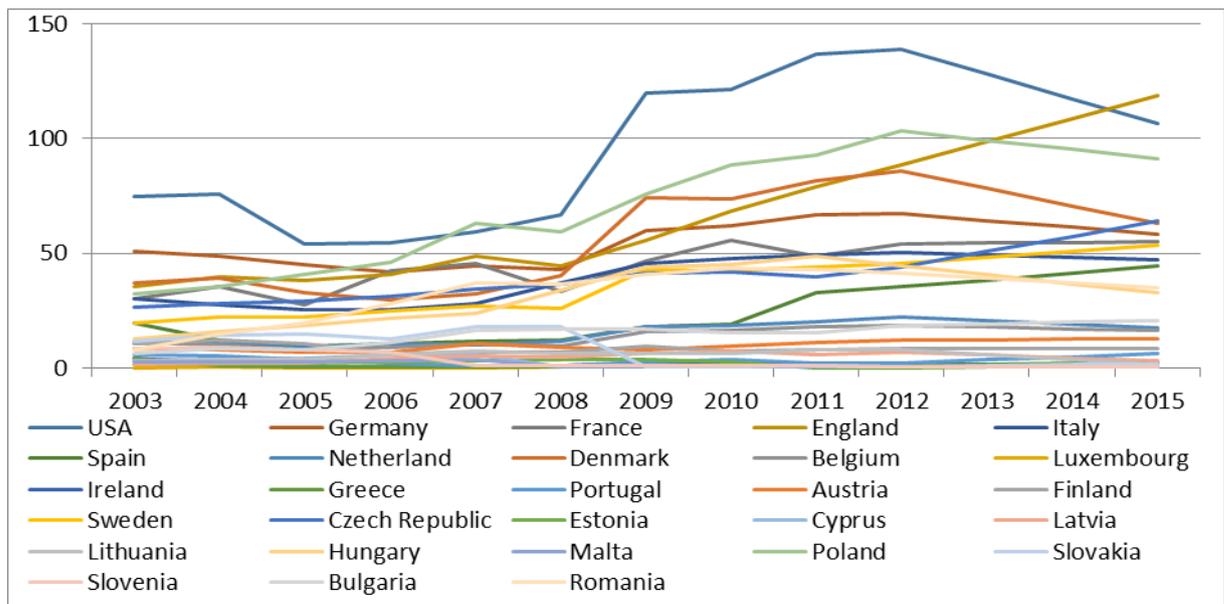


Figure 3 presents changes in export volumes both in the US and EU-27 countries. As obviously seen in Figure 3, changes in exports of EU-27 follow a similar path to changes in US exports, particularly between 2007 and 2010.

**Figure 3. Changes in export volumes from 2003 to 2015 (in millions USD)**

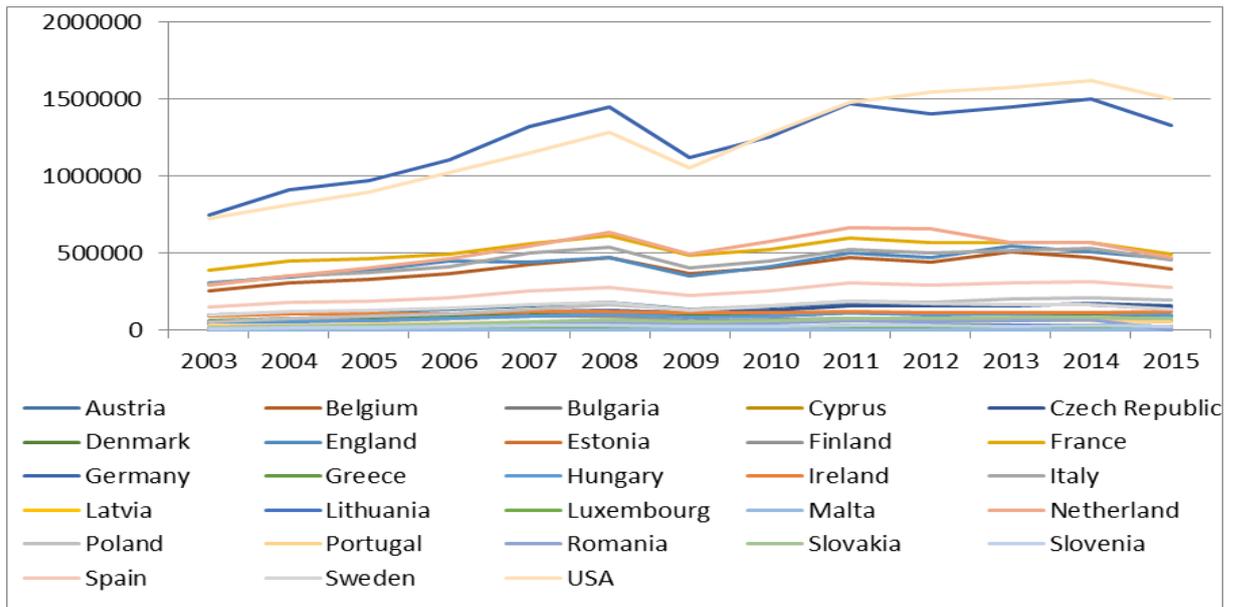


Figure 4 shows changes merchandise trade (as % of GDP) volumes both in the EU-27 and the US economies. We observe again a similar trend in all countries of the sample before, during and after the global crisis periods.

**Figure 4. Changes in merchandise trade from 2003 to 2015 (as % of GDP)**

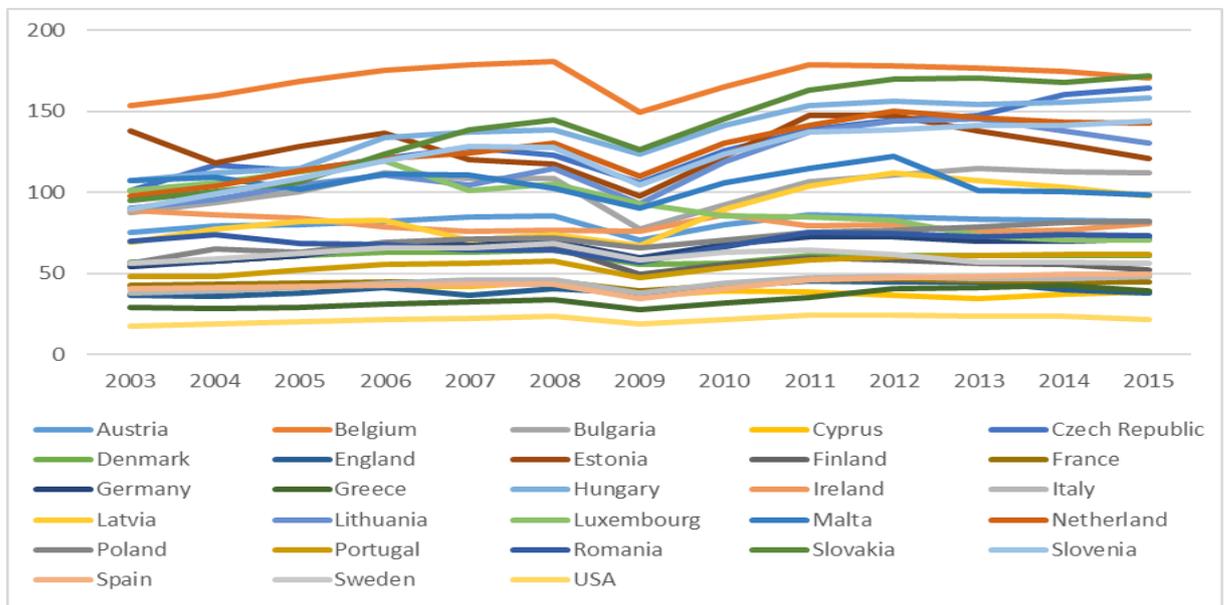


Figure 5 shows that changes in import volumes both in the EU-27 and the US economies follow a similar path, especially during the crisis period.

**Figure 5. Changes in import volumes from 2003 to 2015 (in millions USD)**

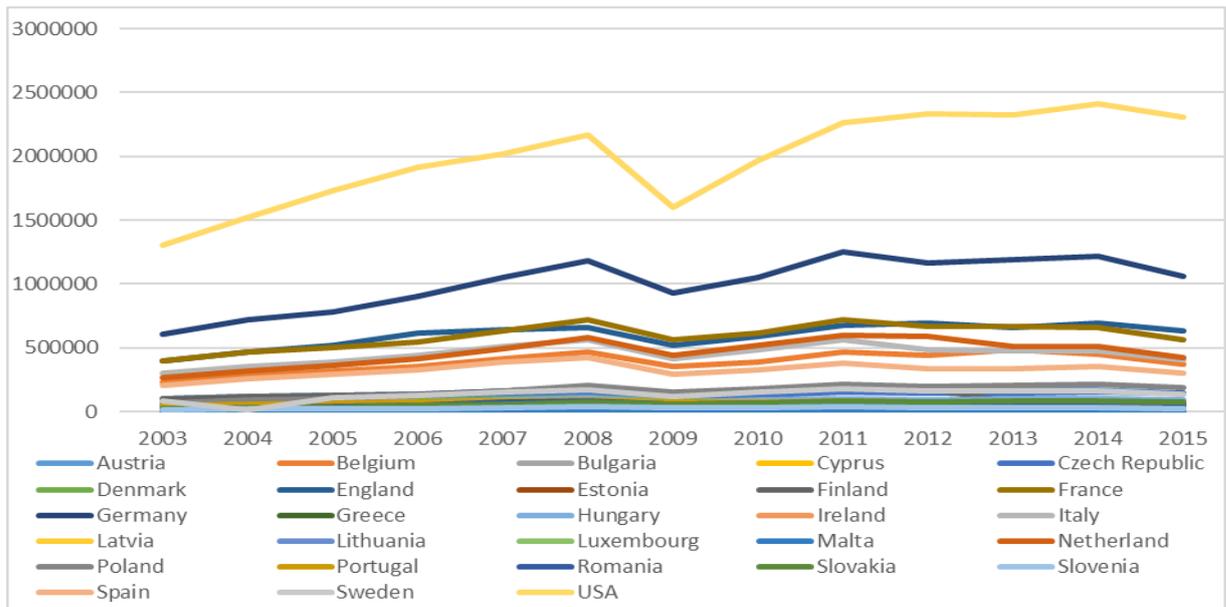


Figure 6 presents changes in the ratio of exports to GDP in some selected EU member countries compared to the US economy. As seen in Figure, countries follow similar paths before, during and after the global financial crisis.

**Figure 6. Changes exports to GDP ratio in selected countries (%) from 2003 to 2015**

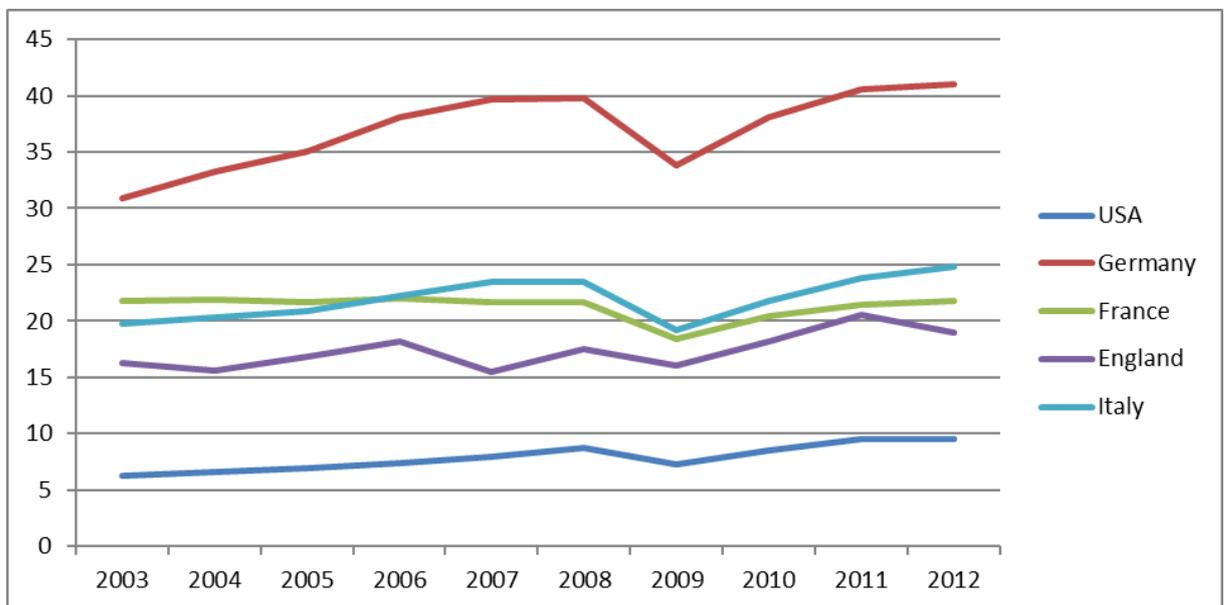
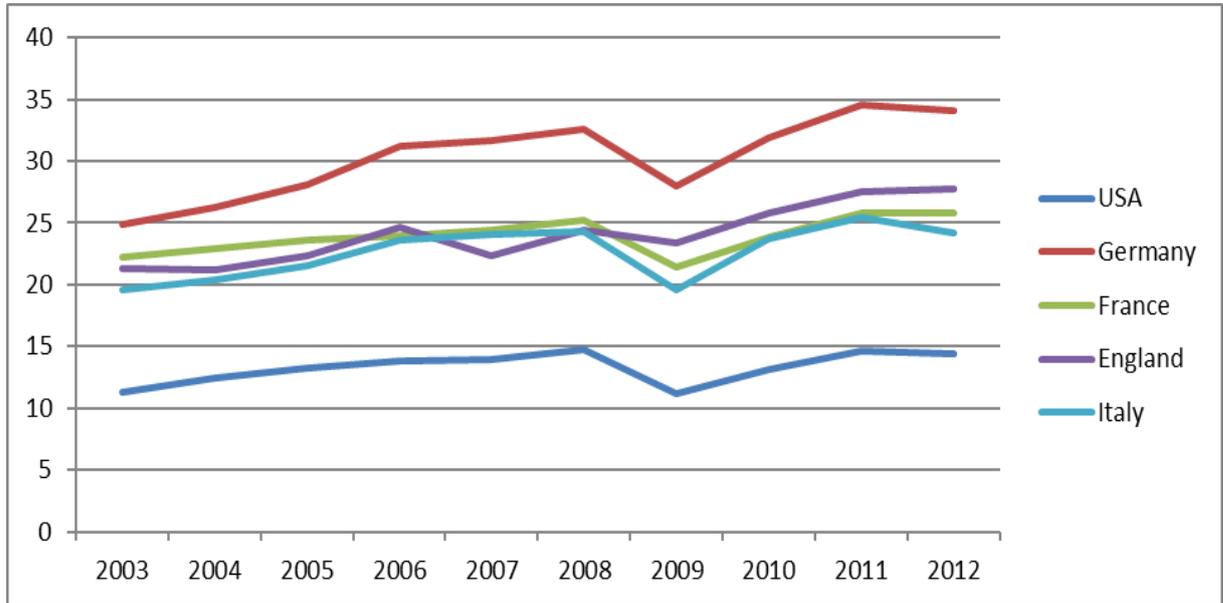


Figure 7 presents changes in the ratio of imports to GDP in some selected EU member countries compared to the US economy. As seen in Figure, countries follow similar paths before, during and after the global financial crisis.

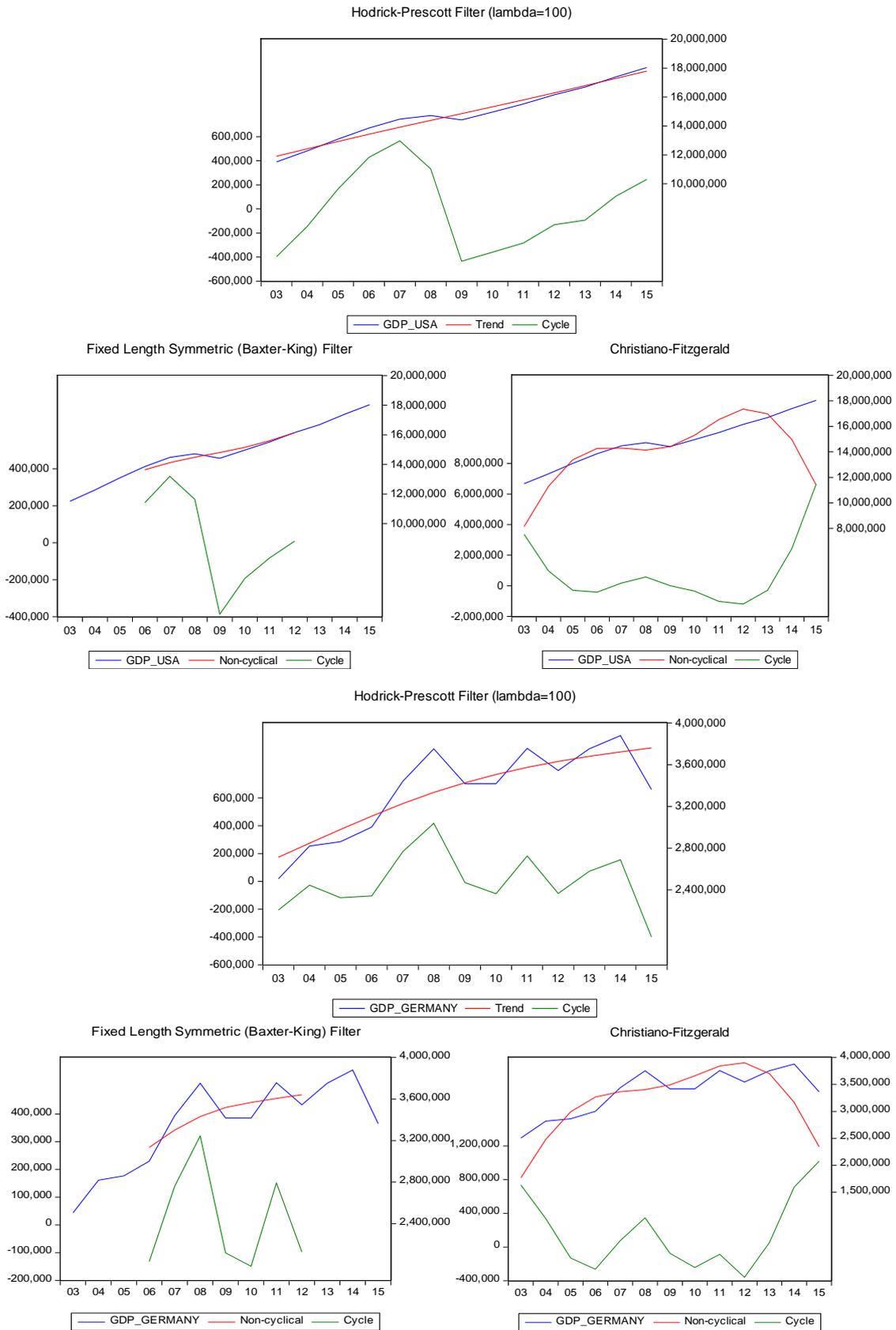
**Figure 7. Changes imports to GDP ratio in selected countries (%) from 2003 to 2015**



There is limited data to investigate the trends of the business cycles within the framework of decoupling and recoupling by comparing the countries. There is not also an approved method for processing the existing data. In addition to the filters for determining trends such as Hodrick-Prescott, Baxter-King, Christiano-Fitzgerald, trends are determined in a more acceptable way with linear and quadratic time trends of artificial variables (Rose, 2009).

Figure 8 presents outcomes of Hodrick-Prescott, Baxter-King, Christiano-Fitzgerald filters related to GDP of the USA and Germany, respectively. These tests indicate that the US and German economies had both similar growth trend and cycle before and during the global crisis. But the cycle in the US economy is more pronounced than the cycle in Germany. Moreover, Figure 8 indicates that the US economy has rapidly exited the crisis but the GDP cycle in German economy followed a W-shaped pattern which is mainly related to the debt crisis occurred in the Eurozone during the 2011-12 period.

**Figure 8. Outcomes of Hodrick-Prescott, Baxter-King, Christiano-Fitzgerald filters related to GDP growth in the USA and Germany from 2003 to 2015**



In addition, we also calculate the correlation in GDP ratios both in the US and EU-27 economies during the 2003-15 period. Correlation results presented in Table 3 indicate existence of an increasing linear relationship, except for Greece. Also note that linear relationship in Cyprus, Italy, Portugal and Spain is quite weak compared to other EU member countries. It is interesting that countries which have a weak and/or decreasing relationship are the countries which were worsely affected by the European debt crisis.

**Table 3. EU-27 correlation coefficients**

USA	1	Ireland	0,750444
Austria	0,800907	Italy	0,456209
Belgium	0,786576	Latvia	0,751412
Bulgaria	0,842881	Lithuania	0,85622
Cyprus	0,507055	Luxembourg	0,929453
Czech Republic	0,729748	Malta	0,939548
Denmark	0,731091	Netherland	0,656951
England	0,683351	Poland	0,860169
Estonia	0,881734	Portugal	0,436941
Finland	0,715724	Romania	0,835842
France	0,696212	Slovakia	0,825692
Germany	0,807123	Slovenia	0,631094
Greece	-0,10122	Spain	0,475555
Hungary	0,620556	Sweden	0,86161

#### 4. Conclusion

In this study we aimed to examine, through decoupling hypothesis, the performance of EU-27 countries in line with the US economy in the long term. The decoupling hypothesis investigates the differences between countries' growth performance and their reaction to global shocks. The decoupling hypothesis has become a very popular topic following the occurrence of the subprime crisis in the US economy in 2007.

Our descriptive analysis is based on yearly data for a sample of 27 EU member countries and the USA. In the study, foreign exchange reserves stock, import and export volumes and ratios of import and export to GDP were used in order to test our hypothesis. Our results indicate similarities in those aforementioned variables between the US economy and the EU-27 countries both before and after the global financial crisis. In other words, EU-27 countries have been re-coupling with the US economy. In selected countries among EU-27 countries (Germany, France, Italy, and England), re-coupling with the US economy is more intense. For some other EU member countries, it can be said that they did not follow same trend as the US economy, such as Portugal and Romania. However, one should note that the European debt crisis that broke out in 2011 in Greece, Portugal, and Spain brought some differences in growth performance of the US economy compared to Eurozone countries.

If business cycles become less synchronized over time, this may be favorable for the world economy. It can allow more steady growth and risk distribution among countries across the world. However there is very little evidence with respect to decoupling. On the contrary, business cycles have shown more similarity among the countries since the crisis in 2008.

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