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European and Global Reform Requirements for Overcoming the Banking Crisis

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Summary: This paper takes a look at the national and international reforms taken in OECD countries after the Transatlantic Banking Crisis. Key elements of the international economic order are analyzed and proposals for reforms both at the national and international level are presented. Economics has come under serious pressure after the banking crisis, the traditional models are concerned too much with deviations from an exogenous long-run equilibrium – instead, more emphasis should be given to long-run growth analysis, including the implications of the golden rule. The G20 reform process taken in the first two years after the banking crisis is partly inadequate and several proposals are presented for the EU and the OECD countries and the G20 that could contribute to a stable and efficient global economic system: The SGP should be adjusted to include requirements for Eurozone countries to achieve a budget surplus in boom periods; moreover, a volatility tax on the rate of return on equity should be imposed on banks and other key financial actors as well as a two-stage financing of ratings.

Zusammenfassung: Dieser Beitrag thematisiert nationale und internationale Reformen in OECD-Ländern, und zwar im Kontext der Transatlantischen Bankenkrise. Schlüsselelemente der internationalen Wirtschaftsordnung werden analysiert und Vorschläge für Reformen sowohl auf der nationalen als auch auf der internationalen Ebene präsentiert. Die Wirtschaftswissenschaften sind nach der Bankenkrise unter ernstem Druck gekommen, da die traditionellen Modelle zu sehr mit Abweichungen von einem exogenen langfristigen Gleichgewicht befasst sind. Besser wäre es, wenn eine größere Betonung auf langfristigen Wachstumsmodellen erfolgte, inklusive der Implikationen der Goldenen Regel. Der G20-Reformprozess in den ersten 2 Jahren nach der Bankenkrise ist teilweise inadäquat und verschiedene Vorschläge für die EU bzw. die OECD-Länder und die G20-Länder werden als Stabilisierungselemente für das globale Wirtschaftssystem vorgeschlagen. Der Stabilitäts- und Wachstumspakt sollte erweitert werden, um ein Überschusserfordernis in Boom-Phasen. Obendrein wäre es wünschenswert, eine Volatilitätsbesteuerung bei den Banken einzuführen, die an der Eigenkapitalquote ansetzen sollte. Zudem ist ein zweistufiger Rating-Prozess als Innovation sinnvoll.

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1. Introduction

The Transatlantic Banking Crisis has been a historical shock to the world economy. Many big banks of OECD countries have suffered large losses as a consequence of the crisis. State-sponsored recapitalizations of banks and expansionary fiscal policy to fight the subsequent international recession in 2009 have sharply raised the debt-GDP ratio. Fiscal policy could be expected to have almost zero crowding-out effects, since central banks maintained interest rates at a very low level and the actual market interest rates' increase in capital markets in 2009/2010 have partly reflected a normalization of risk premiums in a world economy with considerable new problems:

- Real estate markets in the US are still facing considerable instability as the unemployment rate remains high, many real estate funds are subject to high risks of value erosion and the US government's mounting debt-GDP ratio is bound to undermine confidence in world capital markets in the medium run. In October 2010 the US central bank has decided to engage in massive expansive open market operations in 2011 and with the FED maintaining central bank rates close to zero percent, the US has almost no room to maneuver to fight medium-term adverse economic shocks. US medium-term interest rates – say for four year maturities – were negative in 2010 as were yields on government indexed bonds: This causes considerable deviations from the optimal capital intensity.
- The Eurozone is also facing some problems, including unpleasant problems with high debt-GDP ratios in Greece and in some other countries of the Eurozone – besides Greece, a very serious medium-term problem concerns Ireland, whose debt-GNP ratio looks less favorable than its debt-GDP ratio. The traditional focus of the EU – and the EU Stability and Growth Pact - on the debt-GDP ratio is not well founded since interest payments and current repayment has to come from gross national income. There is a second flaw in the logic of the Stability and Growth Pact since member countries and capital market participants are supposed to focus on the gross debt-GDP ratios. From a theoretical perspective this is grossly inadequate, instead focus should be on the net government debt-GNP ratio. Capital markets react to fictitious problems and a considerable part of the current nervousness in capital markets is completely overblown (in my analysis of the Transatlantic Banking Crisis – with the German book manuscript completed in October 2008 – I have correctly anticipated the Greek and the Euro crisis as one of the likely scenarios following the banking crisis (WELFENS, 2009, pp.158-59).
- The ECB has adopted a relatively wise monetary policy course, as it has avoided zero interest rates. However, the Eurozone has also come under low interest pressure as the economic weight of the US, the UK and Japan – all on a near zero interest rate policy in 2010 – creates international adjustment pressure that drives down nominal interest rates in the Eurozone; massive capital flows to newly industrialized countries are observed and capital inflow restrictions have been imposed by some countries that are afraid that subsequent bubbles in these regions could be the price they will have to pay in the medium term for such anomalies in key OECD countries. There is a more general issue: to what extent central banks

can fight bubbles – the ECB (2010) has argued that central banks in certain cases might be able and indeed should fight asset price bubbles through higher interest rates.

- One key question is to what extent the main reform tasks that are related to the Transatlantic Banking Crisis have been adopted by the G20 and the OECD, respectively. The G20 does not have an effective secretariat; rather, the IMF is doing most of the preparatory work. The G20 group is quite heterogeneous but it could be useful in developing global governance structures. For sorting out the key problems in the US and the EU, the G20 is not well suited; obviously this should rather be solved by the US and the EU in tandem, but within the first three years after the crisis only limited progress has been achieved.

- Economists have started to disagree extensively to what extent the Transatlantic Banking Crisis also stands for a failure in the ruling paradigms in Economics: Which short-term models are relevant and what are the long-term modeling approaches that could guide policymakers as a reasonable point of reference for sustainable long-term economic policy. While short- and medium-term analysis of deviations from the exogenous equilibrium – such as the prominent DSGE models – have their merits for part of the stabilization policy, it is absolutely unsatisfactory that no discussion is considered about the long-run equilibrium: If the long-run equilibrium solution was changed due to the banking crisis, this should be taken into account within a consistent medium- and long-term stabilization strategy. The only point of reference that makes sense here is a refined golden rule, and hence modified monetary growth modeling in an open economy with foreign direct investment, technological progress at rate a and growth of population (L) at rate n; for the sake of simplicity, a Cobb-Douglas production function $Y=(M/P)^{ß'}K^{ß}(AL)^{1-ß}$ is considered, where real money balances M/P are held by households but the firms' production function is entered as a positive external effect (WELFENS, 2008): Hence $y'= m'^{ß}k'^{ß}$, where y':=Y/(AL), m':=(M/P)/(AL), k':= K/(AL), K is capital and A is knowledge. Let us assume a savings function according to which households' savings are proportionate to the net national income (α* is the stock of the capital stock owned by foreigners, τ is the income tax rate). Thus, the savings function reads S= sY(1-τ)(1- α*ß). In an extension of this approach – considering employment in the R&D sector – further results can be derived, which indicate the steady state capital intensity in a monetary economy – and this can also be used to discuss the topic of the golden rule and hence potential deviations from the "golden capital intensity" (WELFENS, 2010c). If the considered home country is facing cumulated foreign direct investment inflows but does not have FDI outflows, the setup is asymmetric with respect to foreign direct investment. In principle there is no problem in considering two-way FDI; in such a case – assuming that $Y^*=(M^*/P^*)^{ß'^*}K^{*ß^*}(A^*L^*)^{1-ß^*}$ national income in country I is given by Z= (1-α*ß)Y + αß*Y*q* where q*:=eP*/P is the real exchange rate (e is the nominal exchange rate) and α is the share of the capital stock in country II owned by investors from country I. It is quite unsatisfactory that modeling of savings functions in the standard literature is based on S=s(…)Y and not on S=s(…)Z.

- Ignoring the distinction between GDP and GNP – that is ignoring the role of cumulated FDI inflows and outflows in the era of economic globalization - contributes to the international confusion in the macroeconomic policy. E.g. it can be shown that the Marshall-Lerner condition is different in a setup with FDI than the traditional equation suggests – basically, ignoring FDI can lead to overestimation of the role of elasticities of imports with respect to the real exchange rate: In a world with cumulated FDI, the elasticities required to bring about a change in the current account are larger than stated in the traditional Marshall-Lerner condition (WELFENS, 2009b). We should also point out that the debt-GDP ratios emphasized in the Growth and Stability Pact are misleading, from an economic perspective it is the net debt-GNP ratio that matters (net debt= gross debt minus government assets); the case of Ireland is one of those countries where a strong difference can be seen between GDP and GNP and since the latter is considerably smaller than GDP, the fragility of Ireland's fiscal sustainability is more pronounced than the debt-GDP indicator suggests.
- New empirical findings for Italy and Germany show that there is only bounded rationality in financial markets where observed behavior is consistent with the psychological concept of cognitive dissonance: In periods of rising stock market prices there is an increasing demand for reading financial news where the Granger causality indeed suggests that stock price dynamics stimulate reading about favorable stock price dynamics (ARGENTESI/LÜTKEPOHL/MOTTA, 2010); in periods of declining stock market prices the demand for reading financial newspapers declines as people obviously want to avoid getting additional information about negative stock market dynamics. Following the analytical concept of cognitive dissonance of FESTINGER (1957) one should indeed observe that people enjoy to get confirmation about favorable events and therefore investors active in a bull market environment will raise the demand for financial newspapers and conversely, investors do not like to read confirmation about negative market developments. However, one may add an additional thought: One cannot exclude that real world dynamics could generate herd behavior by an interaction of favorable market dynamics and an increasing demand for financial newspapers which is an environment in which more newspaper journalists are hired and new financial info services be launched – and the increasing supply of favorable information on financial market dynamics then encourages more investors to become active in the respective financial market.
- The Flash Crash of May 6, 2010 at the New York Stock Exchange is an unacceptable pitfall – the strange event leading to enormous very short term falls of the price of some blue chip stocks has not been explained so far. The textbooks on Walrasian models of auctions assume that the auction process takes place in a consistent and orderly way. It is not clear that daily stock market prices are even needed to get a functional market economy, but what is needed are market institutions which work smoothly and consistently.
- In September 2010 the Basel Committee has recommended that equity capital ratios should rise considerably and the Seoul G20 Summit has confirmed this element of reform – dubbed as Basel III (a framework which also will include other elements) – which is designed to make the banking system in OECD countries and worldwide more stable. It is noteworthy that US banks have faced until mid-2010

depreciations of about € 300 bill. which amounted to about 3% of all banking assets, banks in the eurozone had depreciations of € 137 which was equivalent to 0.4% of assets; US banks have received government capital injections of 164 bill. € while banks in the eurozone have obtained €110 bill. which is rather modest given the fact that the balance sheet volume of European banks is roughly three times as large as that in the US (DE LAROSIERE, 2010); depreciations in the eurozone could, however, further increase in 2010-13 if problems in Ireland, Portugal and Greece cannot be sorted out quickly and if adequate institutional reforms in the eurozone and the EU continue rather slowly.

- Part of the EU political system does not fully understand how financial markets work. The idea to push now for a private sector involvement in future restructuring of government debt of EU countries is undermining the already weak confidence in markets and this drives up the spreads in government bonds markets on the one hand; on the other hand Germany can benefit from a save heaven effect (read: record low interest rates) so that the German taxpayer effectively has benefitted from the turmoil in EU markets. It is not true that the German taxpayer is mainly paying for the support of EU partner countries, the fact that Germany's interest payments are at historical lows also means that Germany – and a group of a few other eurozone countries - directly benefits from the eurozone crisis. The sovereign debt crisis of the cohesion countries implies a national banking crisis as banks can borrow in capital markets at interest rates above the interest rate of government bonds: As spreads on sovereign bonds have increased dramatically banks can no longer refinance at reasonable rates and for many banks the traditional intermediation model is no longer profitable. Moreover, the institutional investors in the EU have pulled out of parts of the capital markets; most of these investors have been forced to sell off sovereign bonds of cohesion countries and this implies that there will be a sustained confidence crisis in the eurozone; risk management principles – read the high volatility of the relevant bonds – push institutional investors to offload bonds from cohesion countries. It cannot be ruled out that Ireland, Portugal and other countries will have to use the EU rescue package and this could overstretch the umbrella. In the end the eurozone might be forced to switch to the placement of eurozone bonds, but this in turn could raise critical legal problems for Germany's membership. The dynamics of the banking crisis and the sovereign bonds crisis and the previous asset market bubbles – including a quadruplement of equity and stock prices in Ireland in 1995-2007 – suggest that there is urgent need to reconsider the question which long term policy concepts are adequate and how big the welfare costs of asset bubbles really are (in the case of Ireland these costs seem to be enormous). In the EU there will be a strong consolidation pressure on banks since banks with a model based on capital market financing will hardly be able to survive: Having a bank with plenty of deposits is the key to survival. With many banks in the EU becoming unable to get refinancing from capital markets in 2011-13 the turmoil in the EU banking market will continue.

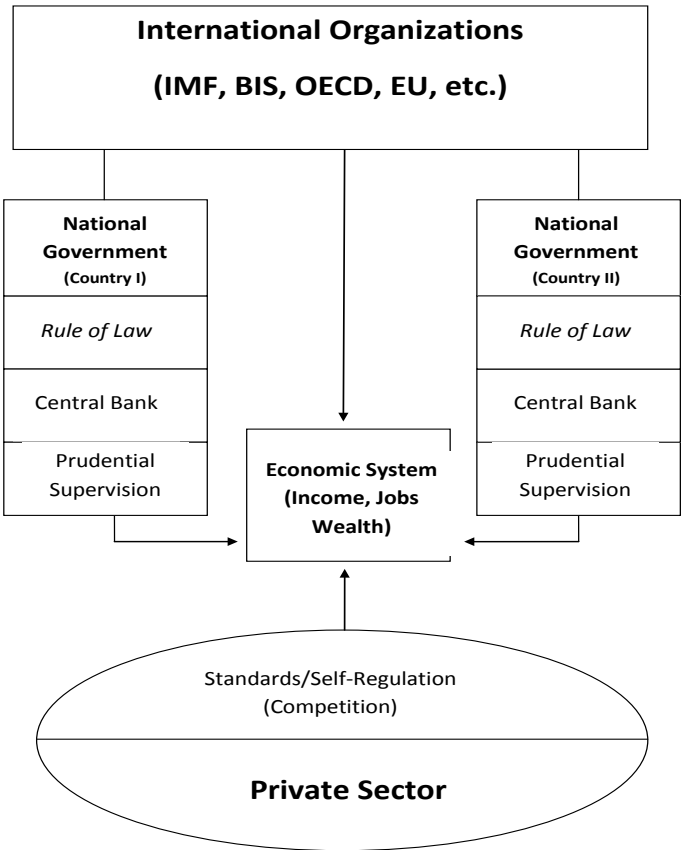
Key problems of the Transatlantic Banking Crisis can be understood in the context of modern institutional Economics, but there are also strange negative international dynamics; the fact that rather small countries have destabilized the whole eurozone is surprising (possibly reflecting weak crisis management) – the near-bankruptcy of California has hardly undermined the standing of the US in international capital markets. There is no doubt that modern financial markets have come up with considerable but often opaque

innovation dynamics and particularly investment banks were hived off the real economy. Financial innovation dynamics concerns multi-layered asset-backed securities – CDOs – whose quality cannot really be assessed by market participants nor by regulators. In the Basel II rules there is one element that has added to the confusion, since the few leading rating agencies got the task of signaling quality in a much distorted capital market, namely by awarding ratings to ABS and CDOs. However, as shopping for rating is a well-known problem and since there is a tight international oligopoly, which is facing massive conflicts of interest (under the standard remuneration schemes), nobody could seriously expect that questions about the quality of financial products and innovations, respectively, could be highlighted in a consistent way. Instead, the rating agencies stimulated the international expansion of lemon-type financial products with their sloppy work. A second market for lemons problems occurred in the context of banks engaging under the eyes of the regulators in creating shadow-banking through the creation of special purpose vehicles that could effectively manage large off-balance sheet activities of the parent bank, which gave big credit lines to their subsidiary SPVs and hedge funds in order to make sure that they received top rating – a rating they should not deserve given the complex assets they had on their books and the shaky short-term financing they were relying on. The absurd situation in rating has not changed much in the context of the G20 reforms.

2. The Global Economic Order and Policy Reform Options

The global economic order basically consists of the major international organizations and the national economic order of the countries in the world economy; governments, central banks and the overall legal system – the rule of law – are important here. The set of institutions and rules that create the framework for individuals and firms exploring economic freedom in the economic system also includes some elements from the private sector, namely certain institutions, standards and rules that act as a binding constraint for individual behavior. If crucial informal standards are eroding in the private sector, this could be no less important than an erosion of formal institutions; the same holds if informal standards are missing or inadequate in newly emerging fields – e.g. the internet where the ITU, the OECD and the user-based institution ICANN have arrived slowly at implementing effective rules for the digital world economy.

Figure 1: The Pillars of the Economic System



An efficient international order generates an adequate vertical assignment of policy tasks; therefore, the global or multilateral policy layer takes on those policy fields where a comparative advantage can be expected for an international organization. At the same time, the national policy layer is responsible for the long-run setting of the national economic order and to implement short- or medium-term economic policy measures. Economic freedom, prosperity and stability should be achieved within a competitive framework and on the basis of a democracy if the principles of the OECD are followed.

The normal state of a market economy may be characterized by the following benchmarking points – most of which were or are violated in the context of the US banking crisis and the Transatlantic Banking Crisis:

- Institutions of the political system and of the private sector are working in an efficient and effective way – they enjoy high credibility and facilitate transactions in markets and in companies and between companies. Institutions that have failed are reformed and managers who are responsible for pitfalls lose their jobs. Courts stand for a third party, which will help solve conflicts over the contracts of market participants – the rule of law implies that those who violate rules will be identified and face adequate sanctions. The typical situation in 2000-2010 in the US and parts of the EU can be summarized as follows: Prudential supervisors have failed in many countries and few reforms were adopted and hardly any top bureaucrats have lost their jobs; this undermines the sense of responsibility in the overall politico-economic system and impairs the reputation of institutions. In the US the banking

crisis has brought hundreds of out-of-court settlements, which leaves unclear what rules really hold and who has really violated rules/laws. This is unacceptable – it undermines the rule of law and impairs the productivity effect of legal systems.

- There is a positive real interest rate and this makes sure that only investment projects with a positive marginal product of capital will be realized. Monetary policy and competition policy each have a high responsibility here. In the US, the medium-term real interest rate in 2010 is negative, which creates incentives for inefficient allocation of capital goods. As a consequence, overinvestment is likely to occur and relative price distortions will emerge, moreover, the price index in the stock market will be artificially raised which also stimulates investment – following the logic of Tobin's q-approach.
- There is a low inflation rate; and deflation is avoided: This refers to the key policy area of monetary policy. Here, the Transatlantic Banking Crisis has not created serious problems – however, the Japanese deflation policy has continued and the associated incentives for carry trades also continue. Central banks might face a special problem during periods of low inflation, namely a bubble in asset markets. The role of asset price dynamics for monetary policy has already been emphasized with respect to the 1920s and the early 1930s in the US: FIELD (1984) has emphasized that the FED misread its own monetary policy course in the 1920s and the early 1930s as it did not take into account that transactions in asset markets absorb liquidity, that is, higher asset prices raise the demand for money and therefore a policy that is considered as being in line with price stability could, in effect, be too restrictive and cause deflation. A national central bank might try to fight an asset bubble which in itself will reduce the current inflation rate if the quantity equation is considered in a modified form $MV= PY + P'K\Phi$, where M is the stock of money, V is velocity, P is the output price index, Y is real GDP, P' is the stock price index, K is the capital stock and the number of stocks, respectively and Φ is the turnover ratio of the representative portfolio. Assuming that the bubble affects the stock market, a rise in the central bank's interest rate will slightly dampen a stock market bubble as a rise in the interest rate will dampen the portfolio turnover rate – see appendix 1 - and also dampen the rise of stock prices in a fundamental perspective (this is relevant if the bubble for the price of stocks P'(t) temporarily follows a pattern $P'\#(1+e'^{vt})$, where # denotes the long-run fundamental price of stock; e' is the Euler number and v is the rate at the bubble growth over time t). Fighting asset price bubbles that show up in the US stock market is possible in principle by an adequate interest rate policy of the US central bank, but if this does not take place, the international spillovers in bubble dynamics will leave the EU and other countries without a viable policy alternative: Except capital controls and the raising of tax rates on stock market profits. However, a real estate bubble price is more difficult to check through interest rate policy. The adequate policy measure here is to impose temporary tax levies, which should not be difficult since real estate basically stands for immobile physical assets. A bubble in the stock market could also be stopped by temporarily levying special taxes.

- Budget deficits and current accounts are manageable: This requires that national governments take adequate measures in situations in which deficit-GNI ratios and current-account-GDP ratios are high. Many OECD countries' governments have fallen victim to the banking crisis and the world recession of 2009. The strong rise in the debt-GDP ratios – by more than 20 percentage points between 2007 and 2011 in OECD countries – implies that governments will be highly dependent on big banks: As regards those banks, responsible governments are expected to regulate them more strictly. There is a conflict of interest and not a single government has taken the action to ban banks with irresponsible behavior in the run-up to the crisis from taking part in the placement of new government bonds. Instead, all big banks – even those that needed government capital injection for survival – have participated in the placement of new bonds. This is totally inadequate and gives doubtful signals to market participants.
- Risk is adequately priced in capital and labor markets; the latter means that there should be a reasonable mix between a fixed salary component and variable bonus payments. Risks were underpriced in capital markets in 2004-06 (GOODHART, 2009). With respect to investment banks and other banks, it is unacceptable if managers create remuneration systems for their employees, which are completely based on deals and thus have no fixed income element. Such incentive schemes – popular at the beginning of the 21st century - generate an artificial national and international M&A wave – with roughly 50% of the deals being a success story, the remaining 50% of failures indeed create a new business case for investment bankers, who come up with lucrative suggestions for what the best way is to dismember merged companies that are not successful. The excessive M&A wave creates negative external effects on workers and capital market participants. The relevant literature on remuneration incentives – with the split between fixed income and bonus payments - suggests that strongly bonus-centered remuneration will attract risk-loving economic agents. This is quite doubtful in an economy that was apparently unable to come up with an adequate risk premium in the EU and the US over several years.
- The rate of return on equity is about 15% in manufacturing industries in OECD countries. The most experienced actors managing risks – reinsurance companies – are said to normally achieve yields of return on equity of 13-16%. It is absolutely unclear why managers of big banks consider a required rate of return on equity of 25% to be a reasonable benchmark for banks – such excessive required rates of return impose excessive pressure on unskilled and skilled labor, including researchers in firms of the manufacturing industry that have to come up with the real equivalent of excessive required rates of return. Raising the required rate of return in US and EU big banks is largely due to the pressure from unregulated hedge funds that realized about 20% rates of return in the second half of the 1990s – so most banks created their own hedge funds and indeed shifted large parts of their business into off-balance sheet subsidiaries: a situation that should not have been allowed or facilitated by prudential supervisors (in the EU it was at least not facilitated by the Spanish central bank). Big banks in many EU countries, which are

reluctant to strongly engage themselves in the risky business of supporting start-ups, have become banks chasing high returns and hence high risk (ARTUS/VIRARD, 2005). A key problem in the banking sector is the too-big-to-fail problem, and this holds in a very fundamental sense: Barriers to exit are barriers to entry and hence it may be assumed that the banking sector partly stands for considerable inefficiencies. Big banks in OECD countries face artificial market conditions and the regulatory regimes imposed so far were largely inadequate: For instance, there is no comprehensive quality checking system on bank advisors – sometimes giving dangerous advice to their clients in following sales targets defined by top management - although it would be easy to establish. To only rely on competition reputation is inadequate in the financial services sector (as opposed e.g. to the car industry) since those who were poorly advised by their respective bank will typically hesitate to discuss the wealth losses in public; the typical sense of shame relevant here implies that endogenous quality control is poor. Even if banks are tested with very negative results by neutral quality control institutions (Stiftung Warentest/Finanztest in Germany) this hardly has an effect on the system as tests are infrequent and the coverage is very minimal. The system would only improve if regular quality checks of hundreds of banks would be implemented on the basis of standardized tests and if banks were forced to publish the results in their annual reports; banks with repeated bad grading of bank advisors should face closing-down of their respective business activity for at least five years – the microprudential regulation has to be sharpened here in order to achieve an adequate macroprudential effect. The modern western banking system in its present state has elements that work well but there are also elements that are not contributing to value-added, rather they stand for value-destruction and systemic creation of negative external effects. The fact that confidence in interbank markets has not been restored two years after the outbreak of the crisis in the summer of 2008 testifies to the destruction of immaterial capital normally used in the financial sector and it is unclear why banks have not adopted write-downs on their respective goodwill if partner banks are no longer willing to do business on a broader basis with them. New rules on the goodwill of banks are required and governments should act swiftly. Normally, people trust in government and banks trust in each other, therefore confidence V' is an implicit input factor in the process of value-added. The implicit production function considered in the simple case of a Cobb-Douglas production function is $Y= V'^{ß"}m^{ß'}K^{ß}(AL)^{1-ß}$, where $0<ß<1$; $0<ß'+ß<1$. The confidence crisis in the banking industry implies that V' has reduced and hence the production potential in many OECD countries has declined in the context of the banking crisis. From this perspective it is unlikely that the pre-crisis growth rates of real GDP can easily be restored.

The Seoul G20 Meeting of November 2010 stands for a growing rift between the US and Germany – where the latter has taken sides with China, whose enormous current account surplus position and its reluctance to accept a real appreciation of the Yuan is destabilizing the world economy. Given the fact that the US faces serious economic problems, it is doubtful that Germany, with its large current account surplus, will emphasize its reluctance to not help the US in overcoming its current account deficit. Germany could reduce income

tax rates and encourage higher wage growth for a temporary period – while emphasizing the need for not reducing the ratio of skilled and unskilled wages artificially - in order to dampen its current account surplus-GDP ratio. While Germany with its fast ageing society might want to achieve a structural current account surplus in the long run, there is no reason why Germany could not adopt a transitory supporting strategy for the US; at the same time Germany and the Eurozone, respectively, could ask the US not to fully implement the envisaged quantitative easing policy for 2011 – the envisaged $600 bill. stands for a high and doubtful intervention volume.

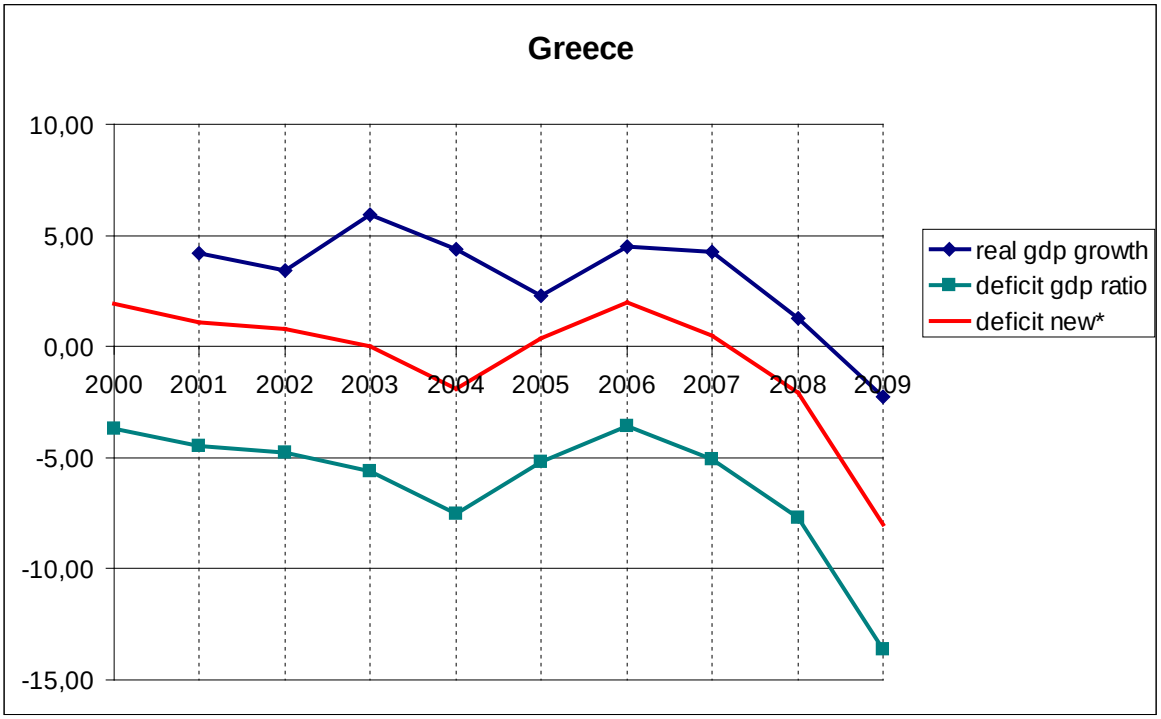
From a functional economic order one would expect:

- Efficient allocation of resources via international markets – in an environment with no serious external effects and with low market transaction costs. However the Transatlantic Banking Crisis has produced enormous international negative external effects that have mainly stemmed from the US.
- International organizations should be active where multilateral or supranational cooperation generates economic benefits; this requires a limited but clear mission statement and sticking to the rules of the respective institutions. In this respect, failure of the IMF to timely produce the financial sector assessment program for the US is noteworthy. The reason for this failure is the intervention of the Bush Jr. administration: This intervention has seriously impaired the reputation of the IMF and has generally weakened the impact of the West on shaping the economic order – this result is not surprising since violation of key rules by those who have imposed them on others (see the IMF in the post Asian crisis) is contradictory. The FSAP on the US was finally published in 2010 – eight years after the FSAP on Switzerland and seven years after the FSAP on Germany - but the report is neither comprehensive nor really critical on the US, therefore, the IMF does not seem to be impartial in its work.
- Confidence in global economic stability rests on a good example of a credible and consistent macroeconomic policy in leading OECD countries and China. Moreover, government debt/GDP ratios have to remain modest, otherwise there will be no room to maneuver in the field of expansionary policy: Insufficient room to maneuver could destabilize expectations and stimulate speculations.
- The OECD countries, as well as China and some other countries have effectively stabilized the economic crisis of 2008/09 but there is no consensus among leading OECD countries about adequate exit strategies or long-term adjustment programs. With the US moving toward a zero interest rate policy and repeated quantitative easing, the US has created new uncertainties for the world economy: The confidence of international policymakers and market participants in the US leadership has eroded. While NICs' weight has increased, it is still true that the dominant economy is the US; with the US failing to come up with the consistent economic policy, confidence in the stability of the world economy is declining.
- Correcting the global current account imbalances can be achieved through real exchange rate changes plus changes in the relative price of non-tradeables (OBSTFELD/ROGOFF, 2005). A basic requirement is to combine a real

devaluation with a relative fall in non-tradeables prices in countries with a current account deficit: With the relative non-tradeables prices falling, there is reduced incentive to produce non-tradeables and hence there will be increasing excess supply in the tradeable sector in the future. Conversely, countries with a current account surplus should face an appreciation and a rise in the non-tradeable price: The latter is particularly relevant for a country like Germany that has a high structural current account surplus (in contrast to the EU current account balance, which is roughly balanced). From this perspective, rising wages could be one starting point to raise the price ratio of non-tradeables to tradeables –more empirical research is needed. As regards the US, the decline of housing prices is part of a relative price adjustment needed in the US. Assuming that there will be no full recovery of the housing sector in the medium term, the implication is that the US will face higher structural unemployment for several years. A serious problem is the overexpansion of the financial sector in the US and in the EU and this also requires structural adjustments.

- A key issue in the banking reform concerns the question how it can be avoided that taxpayers have to effectively bail out big banks facing bankruptcy. A solid solution is still missing, not least since the banking crisis has brought out a consolidation of the banking sector and the too-big-too-fail-problem has become even more prominent after the transatlantic banking crisis. One option to avoid taxpayers having to bail out big banks consists of introducing convertible bonds that trigger a bail-in if a bank faces serious trouble; in October 2010 the Swiss regulator has backed such a bail-in type of convertible bonds for UBS and Credit Suisse, who will have to issue notes that will effectively create a stronger capital cushion. Some experts from the banking industry, however, favor an alternative approach, namely to create special bonds, so-called contingent capital that will not convert to stock but will help to absorb losses directly. When such capital notes are triggered, it would not have a negative effect on banks´ other outstanding senior debt (HUGHES, 2010).
- The EU faces serious problems in imposing the rules of the stability and growth pact. The modifications adopted in 2010 in the EU are inadequate. A key problem is the failure of EU countries to adopt a strict rule that member countries must have a budget surplus in boom periods. While imposing a fine on a high deficit country in recessions will be very difficult politically, it should not be a problem – from a political economy perspective - to impose a fine on an EU country that has not achieved a budget surplus in a boom period. Therefore, the Stability and Growth Pact should be modified. As can be seen from the subsequent figure – showing the original deficit – GDP-ratio for Greece and a “deficit new-line” based on the assumption that there would be zero deficit in the peak growth year 2003- the proposed new rule could have helped to avoid the Greek tragedy in 2010 (the figure is, of course, a somewhat naïve exercise, since one has to make sure that a budget surplus in a boom will not be followed by even more extreme deficit/GDP ratios in the future).

Figure 2: Actual GDP-Ratio and New Deficit Line under the Surplus Rule (country must have budget surplus in boom periods)



The EU should emphasize the notion of sustainability much more – broadly defined (WELFENS, 2010a): In the field of environment, social security and banking. In the ageing EU societies the decreasing confidence in banks and financial markets during the Transatlantic Banking Crisis has undermined the prospects for raising private retirement savings. The collateral damage of the banking crisis is thus very serious.

The EU should take every possible step to overcome the sovereign debt crisis. If problems in the cohesion countries are not tackled there is a risk that problems of relatively small Eurozone countries could undermine the stability of the Eurozone, destabilize the banking system and bring about a real depreciation of the euro the prospects for the US to improve the current account position would be weakened. The world economy cannot have a stable economic recovery if the macroeconomic imbalances and the economic anomalies in the EU and US continue.

3. Operational definitions of sustainable development

As regards the euro zone there is a high likelihood that uncontrolled sovereign debt problems of EU cohesion countries could destabilize the whole eurozone and the EU, respectively. With foreign banks having claims on Greece, Portugal, Ireland and Spain of about € 160 bill., 250 bill., 700 bill. and 800 bill., respectively, a strong rise of market interest rates for sovereign debt of these countries will cause new massive write-downs in banks' balances. Part of the problem of Irish banks is linked to the fact that between 1995 and 2007 the price of equity and of real estate had increased by a factor of 4.5 – reflecting bubble dynamics which seemed to indicate a strong economic dynamism of Ireland, but in the end mainly stood for "superfragility". It would not have been difficult for Ireland to dampen the real estate bubble and the equity bubble through higher taxes on real estate and higher corporate tax rates. However, tax increases certainly would have been unpopular, but in the end Ireland will lose almost a decade of economic progress.

From the experience of Ireland and many other countries with boom-bust cycles it follows that double sustainability should be a key element of future economic policy: Long run environmental sustainability concepts should be combined with a long run complementary sustainable growth perspective – there is no such sustainability if there are unsustainable current account imbalances or unsustainable government budget imbalances or asset bubbles. Hence policymakers should be more interested in long run growth and stability aspects and the implications for short term stabilization policy – this implies less a change for monetary policy as most central banks have always had twin pronged approach, namely to look at long run price stability aspects and short term policy options in periods of low trend inflation to support government policy in the fields of employment and growth. A potential change of monetary policy strategy concerns leaning against the wind in periods of asset bubbles, however, core changes have to come here from tax policy. Tax policy can be differentiated across sectors and markets and indeed could help avoiding asset bubbles. There is some doubt that policymakers will show the will to really stop asset bubbles by tax policy since a fall of the growth rate of asset prices implies lower investment and hence has a negative effect on output and employment – the benefit lies in avoiding future massive recessions. Moreover, situations in which per capita consumption is lower than suggested by the golden rule of growth theory should be avoided; as it seems plausible to assume that a capital intensity above that which is in line with the golden rule reflects an asset bubble the requirement to avoid a bubble might be associated with the requirement to minimize the gap between the steady state capital intensity and k'^{gold} (denoting the steady state capital intensity in line with the golden rule). Denoting social utility by U, target values by ", the inflation rate by π, real GDP by Y and the ratio of physical capital relative to labor in efficiency units by k' (and using # for the steady state and Ω and Ω' for weights of the inflation rate and the unemployment rate) an adequate policy reaction function would look as follows:

$$U = \Omega(\pi-\pi")^2 + \Omega'(\ln Y - \ln Y")^2 + (1-\Omega-\Omega')[k'\#-k'^{gold}]^2$$

Here lnY" is the full employment output. Under certain circumstances the squared bracket may be replaced by the difference between the growth rate of output – or the sum of the growth rate of the population and the growth rate of technological progress – and the real

interest rate. It is not really clear whether a government debt element should be included in the national loss function U. One might indeed want to stick to a pragmatically defined maximum for the debt-GDP ratio as is done in the EU's Stability and Growth Pact.

There is a strong need to broadly address government debt problems in cohesion countries, partly by considering assets swaps, privatization and selling assets to foreigners as well as specialized institutions; e.g. the European Investment Bank could acquire part of infrastructure capital in these countries and the respective cohesion countries thus could repay part of the debt. Debt could also be rescheduled, but this cannot be without certain conditions to be fulfilled, and higher tax rates must be a key element here. Moreover, one should consider joint EU measures to stimulate long run economic growth – including promotion of information and communication technology which is known to contribute to growth both via high progress in the ICT producing sector and by productivity growth in the ICT-intensive sectors: those sectors which use ICT strongly. The role of ICT is often underestimated as the falling absolute price level implies a potentially falling share of nominal ICT value-added in overall value-added: At prices of 1995 the share of ICT in Germany and the euro zone, respectively, has roughly doubled between 1995 and 2010. It is noteworthy that ICT patent dynamics in Greece and Portugal have been very weak in the 1990s and the first decade of the 21st century – here the Lisbon 2010 agenda has been disappointing as national policymakers have not delivered expected supply-side impulses in some of the cohesion countries. While cutting government expenditures and raising taxes naturally is on the policy agenda in cohesion countries one should not overlook the need for supply-side reforms, including labor market reforms and better promotion of innovation. Overcoming problems of the euro zone and the EU, respectively, requires stronger policy cooperation in the EU and better coordination between the ECB and the European Commission – the latter with periodically weak leadership in 2009/2010 – is one element for renewed stability. Internal conflicts and lack of understanding of financial market dynamics partly seem to characterize governments in some eurozone countries, and this is not helpful for European and global cooperation.

As regards debt-GDP ratios of governments it is clear that such ratios are economically not convincing since it is the ratio of government net debt relative to GDP (or better GNP) has to be considered. Prior to the start of the euro zone and the ECB the OECD had produced statistics with rough estimates of the assets of selected member countries; in the mid-1990s the government assets of EU countries probably were in a range of 20-80% of total debt and it is quite obvious that a country falling into the lower range is in a totally different position than a country which is in the top range. It should be noted, however, that many countries have serious problems in coming up with adequate statistics – and the SGP's emphasis on the gross-GDP ratio has reinforced this analytical weakness. In federally organized countries such as Germany or Austria there is at first a broad need for cities and states to come up with the corresponding statistics – in Germany several states have started to develop new statistical systems which in principle will allow to come up with net asset positions of states. As long as government asset positions and net government debt-GDP ratios cannot not clearly be identified neither rating agencies will be able to come up with really useful sovereign debt rating nor will risk premia and interest rate spreads, respectively, stand for adequate signals. Besides the topic of debt-GDP problems and the

issue of critical deficit-GDP ratios there is the international problem of high structural current account imbalances.

The high Chinese current account surplus and the large US deficit are two structural problems which are conflict-prone. A key policy option for overcoming the stallmate in the US-Chinese economic negotiations about current account adjustment requirements is suggested here: As China is afraid that long run economic growth is impaired by a real appreciation of the Yuan China might consider to accept a gradual nominal and real appreciation while the EU and the US provide an accelerated green technology transfer to China which thereby faces in the field of environmental developments reduced growth impediments; green international competitiveness – as measured by revealed comparative advantage - indeed shows large international differences.

Table 1: Potential New Fields of International Cooperation

Eurozone/EU: Policy: Within the eurozone consistent stabilization of the public debt-GDP ratios; reduction of debt-GDP ratio in cohesion countries	***International Perspectives*** Eurozone supports the US pressure on China in order to quickly get a gradual appreciation of the Yuan	***International Perspectives*** Green technology Transfer vis-à-vis China; conditional steps towards recognizing the PR China as a market economy.
USA: Policy: New tax policy to reduce the ratio of the price of nontradables to that of tradables; promotion of innovations in the tradables sector. Avoiding out-of-court settlements in the field of "illegal banking"	Enhanced cooperation with the EU in the field of Basel III/ prudential supervision. Strengthening the WTO in order to avoid growth of protectionism.	Green technology transfer vis-à-vis China;
China: Policy: Greening and broad modernizing the economy. Appreciation of the Yuan	Enhanced trilateral long run cooperation in the field of new environmental policy; gradual opening up public procurement to imports	China develops a new role in the field of burden sharing and joint leadership

The above table lists new potential fields of international cooperation and presents suggestions on welfare-enhancing reforms in several fields, including prudential supervision and trade liberalization; e.g. China could consider opening up public procurements for imports – this would be useful for achieving efficiency gains and for reducing China's current account surplus.

The eurozone should support the US pressure on China in order to quickly get a gradual appreciation of the Yuan – a nominal appreciation is necessary since a still rather elastic supply of labor from the countryside effectively limits wage pressure in industry. To the extent that China is willing to accept a long run real appreciation of its currency the EU can accelerate recognition of China as a market economy – this would facilitate the access

of Chinese firms to EU markets. At the same time the US should implement a new tax policy which specifically reduces the demand for nontradables and thereby stimulates the expansion of the tradables sector and thus helps to improve the current account position. As regards quantitative easing there are certainly critical limits for further steps in this direction unless one would want to undermine confidence in the US dollar seriously.

The banking crisis has raised serious doubts about the ability of OECD countries to combine sustained growth and macroeconomic stability; it has also led to international conflicts in the field of sovereign debt and current account imbalances – with the EU approaching the IMF, a new international division of labor in the field of sovereign debt crisis management has been established. The proposal of introducing sovereign bankruptcy rules in the EU has come up in this context; plus a new EU financial umbrella. Any discussion about new bankruptcy rules should be postponed after the point where stable and sustainable debt/GDP-ratios have been restored in all EU countries, otherwise this will invite destabilizing speculation.

Correcting current account imbalances requires taking into account a broader analytical view which includes the role of foreign direct investment and net profits accruing from abroad, respectively. The implications for macroeconomic analysis are indeed rather comprehensive. As regards the US current account deficit one should not exclude that part of the solution lies in raising government R&D support for technology-intensive sectors whose exports are stimulated thereby, at the same time the US government might have to consider to impose taxes on the nontradables sector in order to stimulate that resources are shifted into the tradables sector – for the US such a tax policy would be a policy innovation.

There is a serious risk that a self-fulfilling prophecy will take place if the debt problems of Ireland, Greece and Portugal are not handled in the right way. While there is no doubt that each country has to take serious steps in order to reduce the long term debt-GNP ratio one may also emphasize that there are options to reduce the burden of the debt:

- A switch to longer maturities could be useful, but this is only adequate if the level of interest rates could be strongly reduced – with only a small risk premium left.
- Bonds with yields tied to economic growth could be a useful innovation: Private bondholders could be offered such bonds in exchange for existing bonds.
- Restructuring of public debt and asset swaps also could be considered; e.g. the European Investment Bank might become the owner part of the national highway system in some of the countries considered. In return the EIB would assume part of the debt of the respective country. The basic idea here is to bring down the gross debt-GDP ratios below 90%; and from there the respective governments could adopt adjustment schemes which restore fiscal stability – this typically will exclude a reduction of employment in the public sector, privatization of government assets and adopting measure in favor of international competitiveness and economic growth. Taking a closer look at the 2010 Agenda of the EU (with an official focus on growth, employment and international competitiveness of EU member countries) one may argue that problems of improving international competitiveness were not really taken serious in those countries which already had been facing high current account deficits in past years.

There is considerable risk that lack of understanding of international financial market dynamics causes the political system of certain EU countries to contribute to destabilizing the European and international financial system, and this in turn will destabilize the global economic system. Serious sovereign debt problems in Western European EU countries would soon undermine the stability of Eastern European EU accession countries and in certain developing countries. Part of the discussion in Germany in 2010 was ill placed as the German government continues to emphasize that it does not want its taxpayers to contribute to solving debt problems of EU partner countries – at the same time the public declarations of Germany that private investors which have invested in bonds of EU countries are expected to face a haircut in the medium term drives further up the interest rates of the cohesion countries. There is a double pitfall here: It is in Germany's own economic interest to help stabilizing the cohesion countries and if this should cost a rather small amount taxpayers' money this will be much cheaper than the loss in economic welfare suffered by Germany – and its EU partner countries – in the case that there is a default of one or several of the cohesion countries plus chaos in international financial markets. Secondly, the German government's repeated emphasis on introducing default procedures for EU countries does not make sense in a situation in which the global economic situation is shaky due to the fragility of the US economy and in which several EU countries, including some big ones, are already facing potentially serious debt-GDP problems. If the government of Germany and of other EU countries should continue on this policy strategy the implosion of the euro zone and the whole EU cannot be excluded; if this should happen it would be a European version of the Lehman Bank disaster where for ideological and political reasons government destabilized the national and global economic system in a most serious way.

For those countries which have the G20 presidency there is a high responsibility to set the right agenda, to discuss policy alternatives on the basis of a clear analytical understanding of international economic dynamics and to achieve consensus on key issues. The European Commission and the ECB in turn should cooperate more intensively to avoid a mismanagement of the sovereign debt problems in the euro zone. Governments of EU member countries in turn should be careful in public declarations not to further destabilize financial markets by sending signals which reduce confidence of market participants in countries with high ratios of public debt to GDP.

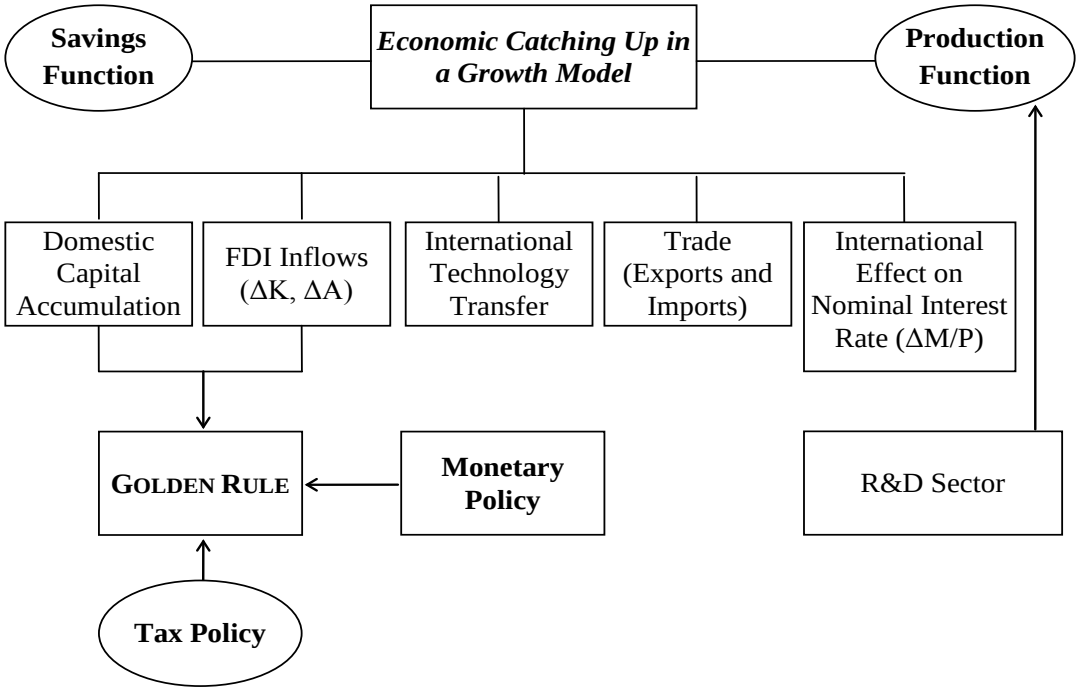
For the EU-27, achieving growth, economic catching-up and stability will remain key elements on the policy agenda, and several fields of economic policy have to interact in a consistent way. At the bottom line, growth and catching-up of an open economy can rely on several pillars (see the graph):

- Domestic capital accumulation and hence domestic savings could play a crucial role. Here the specification of the savings function can also play a vital role. It would be important to know to what extent short- and long-term changes in the real value of assets has an impact on savings in the EU, the US and China.
- FDI inflows can contribute to catching-up both through additional physical accumulation ($\Delta K>0$) and raising the level of technology (partly through embodied technological progress; $\Delta A>0$). As a consequence of a declining role of investment banking in a new post-crisis environment, regional EU and global FDI flows may be expected to decline – most FDI flows represent international M&As, and a

reduced role of investment banks should naturally bring lower international M&A volumes.

- International technology transfer can also be crucial and might consist of pure spillover effects. If capital markets should not fully recover, – this includes Venture Capital markets, which are important for innovation dynamics – long-term economic growth in OECD countries could be smaller than the (partly artificial) growth trend prior to the Transatlantic Banking Crisis.

Figure 3: Growth and Catching-up



- Trade effects could also contribute to catching-up where induced technological progress effects might play a role.
- Portfolio capital flows will also have an impact, since such flows will have an effect on nominal interest rates and hence on the demand for real money balances, which in turn affects aggregate output and the productivity of capital and labor, respectively.
- Tax policy should be employed to establish the golden rule (WELFENS, 2010c). If the US or EU countries or other major countries in the world economy have not achieved a capital intensity that is in line with the golden rule – maximizing per capita consumption – there are easy ways to achieve a Pareto-superior economic state: Countries whose capital intensity is above that of the golden rule can switch to a transition period with a lower investment-GDP-ratio but per capita consumption can still increase; those with the capital intensity below that of the golden rule will have to stimulate savings and raise the investment GDP-ratio. The relevant model should be a monetary growth model (WELFENS, 2010c).
- Finally, the size of the R&D sector – as proxied through its share of employment or the use of capital in that sector –will also play a role in technological progress and

hence economic catching-up. Clearly, effects on the level of the growth path and on the long-run progress rate have to be distinguished.

- Linking the accumulation dynamics with per capita income dynamics goes through the production function and thus the specification of this production is highly relevant. Real money balances should naturally be considered to be a production factor. If the role of the banking sector is to be considered, one may either point to the impact of this sector on the output elasticity of real money balances; or one might introduce a quasi-production factor "financial confidence per unit of labor in efficiency units" (V"). Chaotic financial innovation dynamics could destroy confidence and hence reduce V", while careful long-term financial networking in combination with intelligent incentive systems is needed to restore and accumulate confidence capital.

The key international policy challenges concern the following points, which basically stand for a triangle:

- There are considerable current account imbalances that have to be sorted out if global economic instability is to be avoided. The main responsibility here lies with the US, China and Japan, partially also with Germany.
- There is a rise in sovereign debt risk; however, the main countries concerned are relatively small – particularly in the case of Greece, Ireland and Portugal. The potential international destabilization emerging from these countries is enormous, given the nervousness and fragility of international financial markets. A welfare-improving solution concerning potential problems in the Eurozone consists of organizing a swap from high-yield national bonds of these countries to euro-denominated bonds issued by the European Investment Bank or other common institutions in the EU. Such a swap should only be implemented if all Eurozone countries agree to the new rules of the SGP: In particular all countries must achieve a budget surplus in boom periods and if they fail to do so, a serious fine has to be paid. One might have to consider whether such changes could be implemented on a treaty between central banks of the Euro area, therefore a revision of the EU treaty can be avoided.
- Member countries of the Eurozone should reinforce economic policy cooperation and try to implement consistent new rules for financial markets and banks respectively. Key insights from the New Institutional Economics should be taken into consideration. This includes mechanisms that help to avoid opportunistic behavior of both banks and financial market actors (WELFENS, 2010b). There is no need to generally broaden and deepen regulation of financial market actors but it would be adequate to introduce a volatility tax on the rate of return on equity of big banks: The idea is not to generally impose higher taxes but to give an incentive to bank managers to take a more long-term and realistic view – this will reduce excessive risk taking and help to stabilize the financial and economic system. If EU countries in parallel implement such an institutional innovation, it would stimulate a global reform process and contribute to a better global order. A second reform is also indispensible, if the market for ABC/CDOs is to be revived in a responsible way (2010 has seen

some revival in the Eurozone but most banks have used ABC/CDOs not for selling them in the market but for getting liquidity from the ECB); a key reform is to introduce a two-stage rating system in which conflicts of interests are avoided by organizing the rating process as follows – every bank/firm wishing to place bonds has to finance overall rating expenditures of the pool of all banks/firms namely on the basis of market share in the overall bond issuing, only in a second step would the pool allocate rating jobs in a competitive tendering.

So the reform agenda for the Eurozone/EU and the G20 is ambitious. Both the EU and the US have made progress in the field of regulating rating agencies. Setting up a European System Risk Council is an important step forward in the European reform agenda provided that rules for banks and funds are tightened in the field of risk management: The quality of the risk management of many banks has been poor and the understanding of basic economic dynamics – including national and international network effects – has often been relatively poor; not to mention the standard interdependency of liquidity, risk and yield on investment. As regards prudential supervisors it should become standard that a scientific advisory boards contributes to the quality of the work of supervisory agencies (as a poor example see the case of Germany where the president of BAFIN – the key regulatory agency for financial markets - wrote in the preface of his 2008 annual report that his agency was totally surprised by the developments in US capital markets; given the leading role of the US in global financial markets this is a very strange statement which testifies to rather low analytical qualities at the BAFIN). As regards the US it is disappointing that the political system obviously has ignored a critical report of the Department of Defence on predatory lending practices (US DEPARTMENT OF DEFENCE, 2006) which could have been an early warning signal from the US military. The US prudential supervisory agencies themselves did a poor job which in a world economy with global financial market integration has caused serious international negative external effects.

Monetary policy can be conducted in a consistent way if prudential supervisors implement a coherent policy approach and if underpricing of risk is avoided; in an open economy perspective these requirements must hold for both countries. It cannot be ruled out that underpricing (or overpricing) of risk in one or in both countries would bring about misalignment of the foreign exchange rate. It often is argued that it is quite difficult to calculate a fundamental equilibrium exchange rate, but even if this is so the basic idea of a long run real equilibrium exchange rate should not be dismissed – rather one should refine theoretical concepts to better cover economic reality and international economic interdepencies; e.g. one important aspect in a world of economic globalization concerns the role of foreign direct investment.

International external imbalances are a normal element in international economic relations. However, sustained and high current account deficits can turn out to be a major problem as the net importing country is facing increasing foreign indebtedness and a rising debt-GNP ratio will raise at some point the required rate of return. Disregarding transitory supply-side or demand-side schocks the role of structural current account deficits is a crucial challenge. Under flexible exchange rates a current account deficit could reflect weak international competitiveness in goods markets so that improving productivity and the degree of product innovations would be adequate policy responses. An alternative impulse could be net

capital inflows which drive down real interest rates in the recipient country where investment and consumption then could rise as a consequence of falling real interest rates. One might argue that the US current account deficit of the 1990s is largely reflecting an international excess savings – a savings glut – and not so much a decline of competitiveness of the US economy; the savings glut hypothesis assumes that certain countries in Asia (say in China) have an underdeveloped banking system so that it makes economic sense that savings flow from Asia to the US which enjoys a comparative advantage in financial services. This view for explaining the US current account deficit is only partly convincing; one also has to consider that US subsidiaries have increased output relative to the production of parent companies in the US and this suggests that the US is indeed facing a competitiveness problem – as long as this problem is not remedied the US will remain dependent on net capital inflows from Asia and this might cause long term confidence problems and at some point a sudden stop and a massive rise of US interest rates (going along with a high depreciation rate of the US currency).

The Seoul summit has brought a rise in the core capital adequacy ratios for banks that might reinforce the financial cushion of banks, however, it cannot be ruled out that a bigger financial cushion will bring the paradox result that banks will engage in more risky business. The US subprime crisis and the Transatlantic Banking Crisis would hardly have been avoided if there had been higher equity capital requirement in place already in 2007 – there was simply too much appetite of banks and other financial actors for high rates of return in an environment of apparently low risk premia in the US and the EU in 2004-06. The faster the economic recovery in OECD countries is the less likely serious reforms of financial markets will be. Better regulation is still far away in the OECD.

Appendix 1: The Role of the Stock Market for Money Market Equilibrium and Inflation

The modified quantity equation (WELFENS, 2008) reads: $MV = PY + P'K\Phi$, where M is the stock of money, V is velocity, P is the output price level, Y is real GDP, P' is the price of stocks, K is the capital stock and Φ is the turnover ratio of the representative portfolio (within a gross transaction perspective Φ is unity if the average portfolio is fully sold during one time period; π' denotes the expected change of the stock market price). If we assume that $\Phi(r,\Phi^*,\pi')$ – with $\partial\Phi/\partial r < 0$, $\partial\Phi/\partial\Phi^* > 0$, $\partial\Phi/\partial E(\pi') > 0$ - and that due to profit maximization $\beta Y/K = r$ at any point in time, we can write assuming that the variable Φ^* (* denotes foreign variables) is constant:

(A1) $MV = Y[P + [P'\beta/r]\Phi(\ldots)]$ or $MV/P = Y\{1 + \Phi(\ldots)[(P'/P]\beta/r\}$.

It is noteworthy that – in line with a rational expectations model - the expected rise of the stock market price in turn is a positive function of the expected real interest rate and the depreciation rate as well as a negative function of the expected dividend rate. Assuming that the expression $\Phi(\ldots)[(P'/P]\beta/r$ is relatively small, the approximation $\ln(1+x) \approx x$ can be used; it therefore holds for a constant velocity and a constant real interest rate that $d\ln M/dt - d\ln P/dt = d\ln Y/dt + dq/dt$ where q is Tobin's q, namely P'/P; therefore the inflation rate

(A2) $\pi = d\ln M/dt - d\ln Y/dt - dq/dt$.

The inflation rate in the steady state would be equal to the difference in the growth rate of the money supply and the growth rate of real GDP, but in a transition process of a rising q, the inflation rate is dampened. Thus it does not really come as a surprise that periods of price stability would coincide – under favorable conditions for stock price dynamics (e.g. the stock price index abroad, namely in a major OECD country starts to rise rapidly – with a bubble in the stock market.

Denoting dividends by D and the capital depreciation by δ the stock price index P' can be written under rational expectations – assuming that the real interest rate is not a variable exactly controlled by the central bank or determined by other external factors - as

(A3) $P'_t = E[(D_{t+1})+(1-\delta)P'_{t+1}]/(1+r_{t+1})$;

This well known result can be rearranged as follows:

(A4) $P't/P't+1 = E[Dt+1 /P't+1 +1- \delta]/(1+rt+1)$;

Using the approximation $\ln(1+x) \approx x$ we can write

$\ln(P't+1/P't) \approx -E(D/P')t+1 +\delta + rt+1$

The growth rate of the stock market price thus is approximately equal to the sum of the depreciation rate plus the expected real interest rate minus the expected dividend rate. The stock market price will remain constant if the expected dividend rate is equal to the sum of the depreciation rate and the (expected) real interest rate.

Appendix 2: Economic Interdependencies in the Context of Foreign Direct Investment: New Insights

At first take a look at a simple conventional approach – for the case of an underemployed economy - which puts the focus on the goods market equilibrium conditions in country I and country II (Y* is foreign real income, q* is the real exchange rate, exports have be specified as X=xY*q* and J=jY/q*):

(B1) $Y = cY(1-\tau) + I + G + X – q^*J = cY(1-\tau) + I + G + xY^*q^* - jY$;

Thus we get the benchmark interdependency multiplier of the simple Keynesian approach:

(B2) $dY/dY^* = q^*x/[1-c(1-\tau) + j]$

Note that real GDP (Y) and real GNP (Z) are identical here so that we also can write $dZ/dY^*=dY/dY^*$ (and a similar reasoning holds for country II).

For country II we have

(B3) $Y^* = cY^*(1-\tau) + I^* + G^* + J – X/q^* = cY^*(1-\tau) + I^* + G^* + jY/q^* – xY^*$.

Thus we get

(B4) $dY^*/dY = (j/q^*)/[1-c^*(1-\tau) + x]$

or equivalently for the elasticity of Y with respect to Y* (and for Y* with respect to Y); $dZ^*/dY = dY^*/dZ$.

(B5) $E_{Y,Y^*} = \{q^*x/[1-c(1-\tau) + j]\}Y^*/Y$; $E_{Y^*,Y} = (j/q^*)[1-c^*(1-\tau) + x]Y/Y^*$.

Next let us consider an economy with inward FDI inflows and FDI outflows – here one has to make a distinction between Z and Y - where both countries are producing according to a Cobb Douglas function, namely $Y=K^{ß}(AL)^{1-ß}$ and $Y^*=K^{*ß^*}(A^*L^*)^{1-ß^*}$; the share of K* (in country II) owned by investors from country I is α*, the share of K (in country I) owned by investors from country II is α. It is assumed here that consumption C is proportionate to national income […] and that investment is proportionate to the difference in net marginal products where ß*Y*/K* has to be multiplied by q* to get the foreign gross marginal product in units of country I; τ is the tax rate (* for foreign variable). Net exports of goods and services is xY*q* - jY plus profits received from abroad minus profits paid to foreign headquarters of multinational countries; note that it also has been assumed that a share b' of profits of foreign subsidiaries always is invested as is a part of b" of profits of domestic firms:

(B6) $Y = c[Y(1-\tau)(1- \alpha^*ß) +(1-\tau^*)\alpha ß^*Y^*/q^*]+ b((1-\tau)ßY/K – (1- \tau^*)ß^*Y^*/K^*) + b'\alpha^*ßY + b"(1- \alpha^*)ßY + G +xY^*q^* +\{(1-\tau^*)\alpha ß^*Y^*q^* - Y(1-\tau)(\alpha^*ß)\} – jY$

(B6') $Y[1 - c(1-\tau)(1-\alpha^*ß) - b(1-\tau)ß/K + (1-\tau)(\alpha^*ß) – (b'\alpha^*ß + b"(1- \alpha^*)) + j]=$

$=Y^*[c(1-\tau^*)\alpha ß^*/q^* – b(1-\tau^*)ß^*q^*/K^* + xq^* + (1-\tau^*)\alpha ß^*q^*] + G$

(B7) $dY/dY^*=[1 - c(1-\tau)(1-\alpha^*ß) + j - b(1-\tau)ß/K + (1-\tau)(\alpha^*ß)]/$

$[xq^* + c(1-\tau^*)\alpha ß^*/q^*–b(1-\tau^*)ß^*q^*/K^* +(1-\tau^*)\alpha ß^*q^* - (b'\alpha^*ß + b"(1- \alpha^*))]$

Ignoring the terms b' and b" which in standard Keynesian models are zero one my state: Compared to $dY/dY^* = q^*x/[1-c(1-\tau) + j]$ the nominator in a world with FDI globalization

is larger provided that K* is relatively big; the denominator is smaller provided that (1-τ)(α*ß) is sufficiently small. The implication is that cumulated FDI – as visible in α and α* which reflect cumulated FDI inflows and cumulated FDI outflows, respectively - reinforces the demand-driven interdependency in the world economy.

(B8) $Y^* = c^*Y^*(1-\tau^*)(1-\alpha ß^*) + \alpha^* ßY/q^*(1-\tau)\alpha ß^*Y^*/q^*] + b'^* ß^*Y^* + b''^* ß^*Y^* - b^*[(1-\tau)ßY/(Kq^*) – (1-\tau^*)ß^*Y^*/K^*) + G^* + jY + Y(1-\tau)(\alpha^* ß) – xY^*/q^* - (1-\tau^*)\alpha ß^*Y^*$

(B9) $dY^*/dY=[1-c(1-\tau)(1-\alpha^* ß)-b(1-\tau)ß/K+(1-\tau)(\alpha^* ß) + j]$

$/[c(1-\tau^*)\alpha ß^* + x/q^* – b(1-\tau^*)ß^*/K^* +(1-\tau^*)\alpha ß^*q^* + (b'^*+b''^*)ß^*]$

Supply-side Modelling Context (Z, Z* denote real GNP in country I and II, respectively): Let us consider the production functions and focus on asymmetric international technology spillovers (the latter particularly should be studied in more detail on the basis of International Industrial Economics and empirical analysis).

(B11) $Z=(1-\alpha^* ß)[K^{ß}(AL)]^{1-ß} + \alpha ß^*Y^*q^*$

(B12) $dZ/dY^* = \alpha ß^*q^* >0$

The income multiplier dZ/dY* is different if domestic knowledge is a positive function of foreign knowledge A=f(A*(Y*)) where A*=F(Y*) and $\partial F/\partial Y^*$ is positive; hence dA/dY* is positive. Let us divide the above equation by $[K^{ß}(AL)]^{1-ß}$:

(B13) $Z/[K^{ß}(AL)]^{1-ß} =(1-\alpha^* ß) - \alpha ß^*Y^*q^*/[K^{ß}(AL)]^{1-ß}$

(B14) $\ln Z - ß\ln K - (1-ß)(\ln A + \ln L) \approx -\alpha^* ß - \alpha ß^*Y^*q^*/[K^{ß}(AL)]^{1-ß}$

(B15) $d\ln Z/dY^* \approx (1-ß)d\ln A/dY^*-\alpha ß^*q^*/[K^{ß}(AL)]^{1-ß}-(1-ß)\alpha ß^*q^*/[K^{ß(1-ß)}A^{2-ß}L^{1-ß}]dA/dY^*$

(B16) $Z^*= (1-\alpha ß^*)[K^{*ß^*}(A^*L^*)]^{1-ß^*} + \alpha^* ßY/q^*$

(B17) $dZ^*/dY = \alpha^* ß/q^* >0$

It is inclear whether the long run supply-side interdependencies are stronger or weaker than the demand side interdependencies. Here empirical work is needed. The simple multipliers for dZ/dY* and dZ*/dZ suggest that the parameters α and α* as well as the supply elasticities of the production function play a crucial role. Changes in q* have an asymmetric effect on the multipliers of the two countries considered.

The Real Exchange Rate and Current Account Adjustment

It already has been pointed out that the Marshall-Lerner condition in a world of foreign direct investment looks different than the standard condition (WELFENS, 2009b). In a nutshell some aspects related to FDI can be summarized on the following basis: Assume that exports of goods and services X=xZ*q* (x is a positive parameter) where Z*=Y*(1-αß*) is foreign national income; for the sake of simplicity we consider an asymmetric case of FDI – only country I (home country) is a source country of FDI which roughly stands for the situation USA (I) and China (II). Real imports J of country I are also proportionate to GNP and for the sake of simplicity it will be assumed that J=jZ/q* so that the elasticity of J with respect to q* is minus unity. Hence one may express – in a setup with zero

inflation - the condition for market-clearing of the foreign exchange market as follows, namely that the ratio h"[r/r*] of capital imports relative to capital imports is equal to the ratio of imports of goods and services relative to exports of goods and services; it also is assumed – in line with FROOT/STEIN **(1991)** – that relative capital imports are a positive function of the real exchange rate: a real appreciation will reduce the ratio of capital inflows relative to capital outflows (the parameter ψ^* is positive, but smaller than unity). Moreover, we take into account that the ratio of exports of goods and services to the imports of goods and services is a negative function $F([P^N/P^T]/[P^{N*}/P^{T*}])$; T stands for tradables, N for nontradables. The international relative nontradables price ratio φ' in turn is assumed to be a positive function of relative per capita income y/y* which is in line with Balassa-Samuelson argument; thus we multiply eP*J/(PX) by $(k/k^*)^{-ß'}$ where ß' is the Balassa-Samuelson elasticity of the export-import ratio with respect to the relative capital intensity position k/k*; $y=k^{ß}$ and $y^*=k'^{ß^*}$)

(C.1) $h"[r/r^*](q^*)^{\psi^*} = [(eP^*J)/(PX)](k/k^*)^{-ß'}$

Here we assume that knowledge is unity in both countries and constant – taking into account process dynamics and technological progress, respectively, is possible but makes the analysis more complex. Profit maximization will bring about $r= ßk^{ß-1}$ and $r^*=ß^*k^{*ß^*-1}$ and since $X=xq^*Y^*(1-\alpha^*ß)$ and $J=j[Y + \alpha ß^*Y^*]/q^*$ we can write:

(C.2) $h"[ßk^{ß-1}/ß^*k^{*ß^*-1}](q^*)^{\psi^*-1} = (k/k^*)^{-ß'}[jY + \alpha ß^*Y^*]/[xq^*Y^*(1-\alpha^*ß)]$

(C.3) $h"[ßk^{ß+ß'-1}/ß^*k^{*ß^*+ß'^*-1}](q^*)^{\psi^*-1} = \{jY/[xY^*(1-\alpha^*ß)]\} + \{\alpha ß^*/[x(1-\alpha^*ß)\}$

(C.4) $q^*= \{[ß^*k^{*ß^*+ß'^*-1}/(ßk^{ß+ß'-1})]\{jY/[xY^*(1-\alpha^*ß)]\} + \alpha ß^*/[x(1-\alpha^*ß)/ h"]\}^{1-\psi^*}$

(C.5) $e= (P/P^*)\{[ß^*k^{*ß^*+ß'^*-1}/(ßk^{ß+ß'-1})]\{jY/[xY^*(1-\alpha^*ß)]\} + \{\alpha ß^*/[x(1-\alpha^*ß)\}/h"\}^{1-\psi^*}$

Here we can see that - assuming that $ß^*+ß'^*>1$ and $ß+ß'<1$ - a real depreciation is required if k/k* is rising, but also if the share of the foreign capital stock owned by the home country is rising; if one considers additionally that the import parameter j probably is a positive function of α – since cumulated FDI outflows partly will reflect international outsourcing and offshoring – one may emphasize strongly that a rise of cumulated outflows and a higher α, respectively, should bring about a real devaluation: However, the nominal exchange rate is a political decision and here consensus about a change often is not easy, the second point is that P/P* is a negative function of α and of k*/k (reflecting the Balassa-Samuelson argument) – the foreign price level will "broaden" under the impact of a rising α since more sophisticated products will be produced and exported and some old and indeed outdated products will no longer be produced.

Finally, one may want to consider the role of export price elasticity and import price elasticity more deeply, namely by not relying on the special case of unit elasticities chosen here. Instead one may assume that the elasticities depend on relative product innovativeness which in turn are linked to k/k*; as k* is rising relative to k the share of sophisticated export products will increase so that the import price elasticity of country I will fall; and the catching up process could in the end also be a positive function of α.

Government Budget Constraint

Disregarding seigniorage we can state the government budget constraint in nominal terms (with G' for nominal government consumption, i for nominal interest rate, B' for nominal government debt, τ for income tax rate and Y' for nominal GDP, t is the time index) as follows:

(D1) $G' + iB' - \tau Y' = dB'/dt$;

The primary deficit is $G' - \tau Y' = [dB'/dt - iB']$; $G' = \gamma Y'$ $(0 < \gamma < 1)$; we define the debt-GDP ratio as $b' := B'/Y'$

(D2) $dB'/dt = (\gamma - \tau)Y' + iB'$

Dividing by Y' (and using the definition $g_{Y'} = (dY'/dt)/Y'$); moreover it holds that $db'/dt = (dB'/dt)/Y' - b' g_{Y'}$.

(D3) $db/dt + (g_{Y'} - i)b' = (\gamma - \tau)$;

It has been assumed that $(\gamma - \tau)$ and $(g_{Y'} - i)$ are constant. We assume that I is smaller than the nominal growth rate of GDP. Thus we have the following differential equation - with C_0 to be determined from the initial conditions; e' is the Euler number:

(D4) $b'(t) = C_0 e'^{-(gY' - i)t} + (\gamma - \tau)/(g_{Y'} - i)$

This equation will converge with t approaching infinity towards the steady state solution:

(D5) $b'\# = (\gamma - \tau)/(g_{Y'} - i)$

As we have i = real interest rate plus inflation rate and since we have real GDP growth rate $(g_Y) = g_{Y'}$ minus inflation rate the debt GDP ratio in the steady state and the relevant multipliers can be written as follows (if the real GDP growth exceeds the real interest rate the government consumption-GDP ratio may exceed the tax rate; otherwise the government consumption-GDP ratio must be below the tax rate – against this background the new situation for Greece – after 2008 – that $r > g_Y$ – is dramatic):

$$b' = \frac{(\gamma - \tau)}{(g_y - r)}$$

$$\frac{db'}{d\gamma} = \frac{1}{g_y - r} > 0;$$

$$\frac{\mathrm{db}'}{\mathrm{d}\tau} = \frac{-1}{g_y - r} < 0$$

$$\frac{db'}{dg_y} = \frac{-(\gamma - \tau)}{(g_y - r)^2} < 0 \text{ für } \gamma > \tau;$$

$$\frac{\mathrm{db}'}{\mathrm{dr}} = \frac{(\gamma - \tau)}{(g_y - r)^2} > 0 \text{ für } \gamma > 0$$

$$\text{(II)} \quad \frac{\mathrm{db}'}{\mathrm{d}\tau'} = \frac{\frac{dg_y}{d\tau}(\gamma - \tau)}{(g_y - r)} + 1$$

Appendix 3: Data on Greece

Table 2: Data on Greece

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GDP per capita*	137929.5	143718.4	148661.1	157496.6	164375.5	168123.8	175668.1	183141.9	185436.7	181198.2
GDP growth	4.54	4.20	3.44	5.94	4.37	2.28	4.49	4.25	1.25	-2.29
Deficit/GDP ratio	-3.7	-4.5	-4.8	-5.6	-7.5	-5.2	-3.6	-5.1	-7.7	-13.6

Source: Eurostat; *constant prices

Appendix 4: Interest payments/GDP (%)

Table 3: Interest payments / GDP (%)

Interest/GDP*100	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
European Union (27 countrie	5.17	5.21	4.73	4.38	3.81	3.64	3.48	3.19	3.02	2.84	2.76	2.67	2.71	2.73	2.74	2.98	3.20
European Union (15 countrie	5.20	5.25	4.76	4.42	3.84	3.67	3.51	3.22	3.05	2.87	2.79	2.71	2.78	2.81	2.79	3.03	3.26
Euro area (16 countries)	5.41	5.50	4.95	4.60	4.04	3.90	3.81	3.51	3.31	3.11	2.99	2.91	2.96	2.97	3.01	3.18	3.41
Euro area (12 countries)	5.43	5.52	4.97	4.61	4.05	3.91	3.81	3.51	3.32	3.12	3.00	2.92	2.97	2.99	3.03	3.21	3.43
Belgium	8.88	8.46	7.70	7.36	6.85	6.62	6.49	5.76	5.34	4.78	4.32	4.01	3.87	3.82	3.96	4.08	4.16
Bulgaria	14.10	21.08	8.27	4.26	3.78	4.05	3.33	2.28	2.03	1.80	1.68	1.40	1.03	0.84	0.81	0.87	0.91
Czech Republic	1.03	1.21	1.12	1.16	1.02	0.84	1.01	1.24	1.14	1.16	1.15	1.10	1.14	1.07	1.39	1.53	1.59
Denmark	5.88	5.66	5.00	4.54	4.09	3.66	3.38	3.14	2.83	2.53	2.05	1.74	1.57	1.39	1.47	1.47	1.44
Germany	3.49	3.48	3.38	3.36	3.14	3.15	3.05	2.92	2.97	2.82	2.79	2.82	2.77	2.69	2.75	2.79	2.86
Estonia	0.52	0.40	0.27	0.54	0.29	0.21	0.15	0.21	0.21	0.23	0.19	0.18	0.17	0.22	0.39	0.55	0.67
Ireland	5.30	4.50	3.77	3.41	2.41	1.99	1.48	1.35	1.24	1.13	1.04	0.89	0.84	1.03	2.23	3.33	4.00
Greece	11.23	10.50	9.29	8.15	7.40	7.38	6.46	5.58	4.98	4.84	4.61	4.42	4.41	4.59	5.00	5.70	6.20
Spain	5.13	5.23	4.69	4.21	3.51	3.24	3.05	2.71	2.37	2.04	1.79	1.64	1.61	1.58	1.84	2.46	2.94
France	3.47	3.59	3.47	3.34	3.02	2.92	3.05	2.96	2.83	2.78	2.67	2.58	2.69	2.80	2.77	2.88	3.02
Italy	11.59	11.52	9.29	8.18	6.64	6.37	6.33	5.67	5.17	4.79	4.69	4.63	4.98	5.12	4.70	4.73	5.14
Cyprus	2.00	2.37	2.46	3.06	3.04	3.35	3.36	3.17	3.41	3.30	3.51	3.26	3.08	2.86	2.05	2.16	2.24
Latvia	0.91	1.40	0.91	0.72	0.66	0.98	0.91	0.74	0.69	0.73	0.54	0.48	0.46	0.75	1.24	2.36	3.83
Lithuania	0.35	0.83	0.73	1.13	1.47	1.75	1.52	1.32	1.25	0.94	0.81	0.73	0.70	0.65	1.36	2.21	2.63
Luxembourg	0.43	0.41	0.41	0.41	0.32	0.34	0.33	0.26	0.22	0.17	0.16	0.18	0.24	0.29	0.60	0.61	0.65
Hungary	8.93	9.16	8.59	7.06	6.66	5.12	4.63	4.01	4.04	4.34	4.14	3.96	4.04	4.14	4.31	4.18	3.76
Malta	2.04	2.23	2.73	3.22	3.71	3.63	3.37	3.56	3.41	3.66	3.72	3.51	3.34	3.30	3.32	3.24	3.34
Netherlands	5.63	5.30	4.93	4.67	4.28	3.65	3.17	2.80	2.60	2.48	2.36	2.20	2.21	2.13	2.39	2.47	2.53
Austria	4.08	4.02	3.75	3.73	3.52	3.62	3.54	3.35	3.10	2.97	3.00	2.89	2.87	2.60	2.98	3.07	3.27
Poland	5.74	4.56	4.54	4.02	2.96	3.02	3.12	2.89	2.97	2.76	2.80	2.65	2.31	2.23	2.65	2.95	2.98
Portugal	5.79	4.97	3.90	3.23	3.04	3.06	3.03	2.89	2.77	2.67	2.57	2.77	2.88	2.98	2.92	3.09	3.48
Romania	1.67	1.87	4.46	3.94	5.05	3.94	3.43	2.46	1.60	1.43	1.10	0.82	0.76	0.76	1.60	1.80	1.97
Slovenia	2.14	2.08	2.38	2.20	2.36	2.41	2.37	2.19	1.96	1.70	1.55	1.39	1.28	1.11	1.57	1.89	2.00
Slovakia	2.37	2.54	2.40	2.54	3.39	4.06	4.00	3.55	2.51	2.18	1.72	1.46	1.39	1.24	1.31	1.34	1.36
Finland	3.94	4.17	4.18	3.51	3.00	2.80	2.64	2.09	1.89	1.76	1.69	1.54	1.48	1.47	1.42	1.47	1.54
Sweden	5.30	5.39	5.23	4.57	4.02	3.49	2.76	3.07	2.26	1.83	1.88	1.75	1.80	1.68	1.33	1.22	1.23
United Kingdom	3.57	3.57	3.56	3.47	2.83	2.71	2.33	2.00	1.98	1.96	2.10	2.06	2.22	2.29	1.88	2.58	2.98

Source: European Commission (2010)

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