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ECONOMIC AND BEHAVIOURAL ASPECTS OF THE EURO CRISIS

There are many reasons for the current state of affairs in the Eurozone, most of which fall within the scope of economics, politics, and human behaviour. In the first step, this paper briefly discusses the macroeconomic and fundamental background of the Eurozone turbulences. We argue that the roots of the crisis lie in the persistent imbalances within the Eurozone and the inflexibility of the common monetary policy that turned out to be inadequate for the dissimilar economies of the EMU. We also point at the mounting public debt, the high risks associated with the European banking sector, and the interdependence between the financial solidity of the banking system and government solvency across the Eurozone. However – contrary to many other commentaries – we consider the large public debt not as the primary reason for the crisis in Europe, but as an effect of the earlier lack of fiscal discipline and the result of external factors added on top.

Later in this paper, attention is focused on behavioural aspects that might have contributed to the financial crisis and human inclinations that demonstrated themselves on that occasion. We discuss the extrapolation bias and problems with the time horizon of the decision makers, the underestimation of risk due to overconfidence and the difficulties with the probability estimation of extreme scenarios. We define “the Euro heuristic”, a phenomenon responsible for overseeing the risk disparity among various members of the EMU, and explain why bad news gets accepted relatively slowly. Herding, the activities of hedge funds, and the role of rating agencies are also deliberated upon. The behavioural approach to the recent European crisis and the application of psychological inclinations in this particular context, constitute the original contribution of this paper.

The findings of the paper may help to avoid similar mistakes in the future, especially for prospective Eurozone members in years to come.

Keywords: Eurozone, euro crisis, behavioural finance, psychological inclinations of investors and decision makers

JEL codes: E4, E6, F3, F4, G1

1. INTRODUCTION

The European Union today faces one of the greatest challenges in its existence. The Eurozone, which just over a decade ago was praised as Europe’s great unifying achievement, has given way to states on the verge of

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default, financial systems that seem as solid as a house of cards, and a great deal of disappointment with the European institutions.

For more than two years, we have witnessed sovereign financial distress of several European countries, starting with Greece's shocking declaration in late 2009 that its debt to GDP was approximately double what had been presumed. Most investors and analysts were still not concerned, since all major European countries enjoyed high investment grade ratings from the major rating agencies. Also the traditional metrics for measuring sovereign debt performance, essentially all top-down macroeconomic indicators, were only just starting to signal a deteriorating scenario. The world's financial community then began to systematically assess the health of several peripheral European countries (the so-called PIIGS [Portugal, Italy, Ireland, Greece and Spain]) leading to a spike in those nations' yields on their Government's debt. Finally, those lofty investment grade ratings began to tumble in 2010 and eventually the European Central Bank and its leading contributing countries were forced to set up rescue packages, first for Greece, then for Ireland, and Portugal. Despite the initial aid, the Greek drama seems to be far from ending, Ireland is on the way to recovery, and Portugal is still a question mark. Also the situation in Spain and in Italy is being anxiously monitored by the international financial community, as the failure of those two countries, and Italy in particular, would have a much bigger impact on the stability of the financial system and on the European and global economy.

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2. MACROECONOMIC BACKGROUND

The European sovereign debt crisis was created by a combination of complex factors, including differences in the stage of development of the economies constituting the Eurozone, the current account imbalances, the

inflexibility of monetary policy, the lack of fiscal discipline, and the problems of the European banking sector. The impact of external sources should also not be underestimated. The globalization of finance, easy credit conditions in the period 2002-2008, and finally the 2008 global financial crisis, also left its mark on the current state of affairs in the Eurozone.

2.1. A monetary union of dissimilar economies

The European Monetary Union (EMU) was principally a political project aimed to join irrevocably the French, German, and other European economies and to cement European unity. Since the end of World War II, generations of political leaders and policymakers have chosen economic integration as an instrument to prevent any future wars on the Old Continent. This process was gradual over decades, but finally the German reunification in October 1990 provided the political impetus for the creation of the Maastricht Treaty, which in 1992 laid the legal foundation and a detailed design for today's euro area.

As a result of the primacy of politics over economics, the EMU was launched in 1999 comprising a set of countries that were far more diverse in their economic fundamentals and far less economically integrated than what economic theory would have predicted feasible. At least two major clusters of the Eurozone countries may be distinguished, *The Core*, consisting of Austria, Finland, France, Germany, and Benelux, and *The Peripheries* – represented by Greece¹, Italy, Ireland, Portugal, and Spain. *The Core* can be characterized as efficient and highly productive, prudent net savers, consuming moderately and providing for their future. This is reflected in stable and high private savings rates and persistent current account surpluses. The net foreign asset positions of these countries are almost balanced on average. On the other hand, the *Peripheries* are less efficient², consume in excess of their resources, and consequently these countries have low savings and a current account deficit that is financed by foreign capital inflows. Moreover, the servicing of high net foreign debt positions constitutes a considerable burden for these countries, especially since investors finally realized the differences among the Eurozone issuers, and yields on the

¹ Greece joined the EMU in 2001.

² Ireland was an exception in the *peripheral* cluster in terms of relatively high productivity, however it shared many other characteristics with the *Peripheries*, particularly high dependence on foreign capital inflows.

Peripheries' bonds spiked. Thus we observe growing external and internal imbalances across the Euro-area and an increasing indebtedness of the *Peripheries* to the *Core* (see Figure 1 and Figure 2).

Nevertheless, this should not lead to a premature and naive conclusion that the *Core* is generously subsidizing the *Peripheries* because of solidarity and purely for the sake of European unity and safety. The *Core* countries, and Germany in particular, also have an overwhelming economic interest in the survival, and indeed the strengthening, of the Eurozone. Their entire economic model is based on export-led growth and world-class international competitiveness. Before the euro, however, large trade surpluses would often lead to a sharp appreciation in the exchange rate of their national currencies, that would dampen their international competitiveness, harm exports, and thus limit their growth.

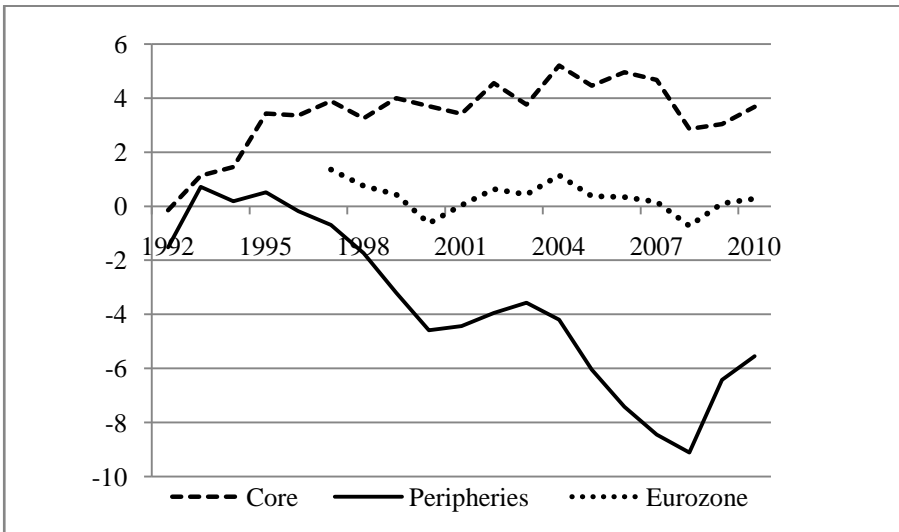


Figure 1. Current account deficit 1992-2010 (as % GDP)

Source: IMF, Bloomberg

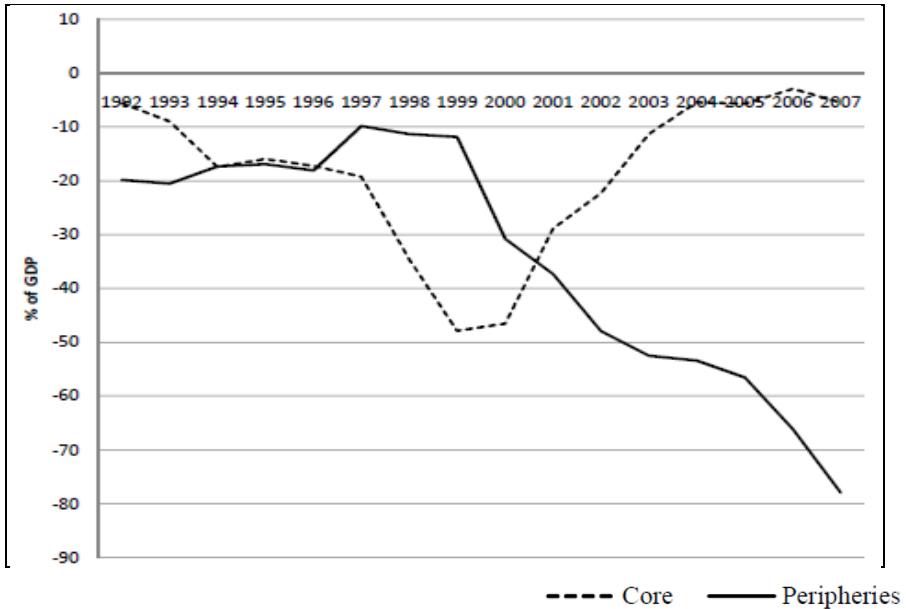


Figure 2. Net foreign assets (% of GDP) 1992-2007

Source: Lane and Milesi-Ferretti (2007)

The *Core* countries may enjoy a preferable economic situation of trade surpluses and relatively weak currency, as the euro averages out also much weaker economies of the *Peripheries*. Recently, this unusual combination has been an important handicap, particularly to the German economy that has remained in relatively good shape during the global slowdown.

It is not the case that the disparity between the *Core* and the *Peripheries* was unnoticed prior to the crisis. Until recently, however, the observed pattern in current accounts was mainly attributed to the European convergence process (Blanchard and Giavazzi 2002, Arghyrou and Chortareas 2008). The theory of intertemporal maximization suggests that diverging current accounts are the natural consequence of a convergence process among countries with different levels of economic development. Countries with a lower per-capita income attract foreign investment, as the expected higher productivity and economic growth rates promise superior rates of return. At the same time, these countries consume more and save less in anticipation of higher growth in the future. In the same convergence process, inflation is likely to rise in the catching-up economies. Given a

fixed nominal exchange rate within the Eurozone, relatively higher inflation rates mean an immediate real exchange rate appreciation and thus a loss in the international competitiveness of the *Peripheries* and worse trade balances. As a result of the whole process, the peripheral countries register high current account deficits that are financed by inflows of capital investment from the *Core*. On the other hand, the *Core* enjoys current account surpluses, while financing the *Peripheries*.

The convergence process is enhanced in the presence of integrated real and financial markets. Therefore, one could put forward a controversial statement that those cross-country imbalances may well be perceived as a success of, and not a threat to, the euro. The question, however, is how long such a situation can be sustained. Current account deficits in the past lead unavoidably to the accumulation of net foreign debt positions that need to be serviced out of current income. Persistent trade deficits, declining net current transfers, and increasing net factor income payments lead to a spiral of foreign indebtedness.

The high productivity of the invested capital is crucial to the assumption that the accumulated foreign debt can be serviced regularly and repaid ultimately by the *Peripheries*. Therefore, the growth needs to be real, sustainable, and actually should lead to convergence with the *Core*.

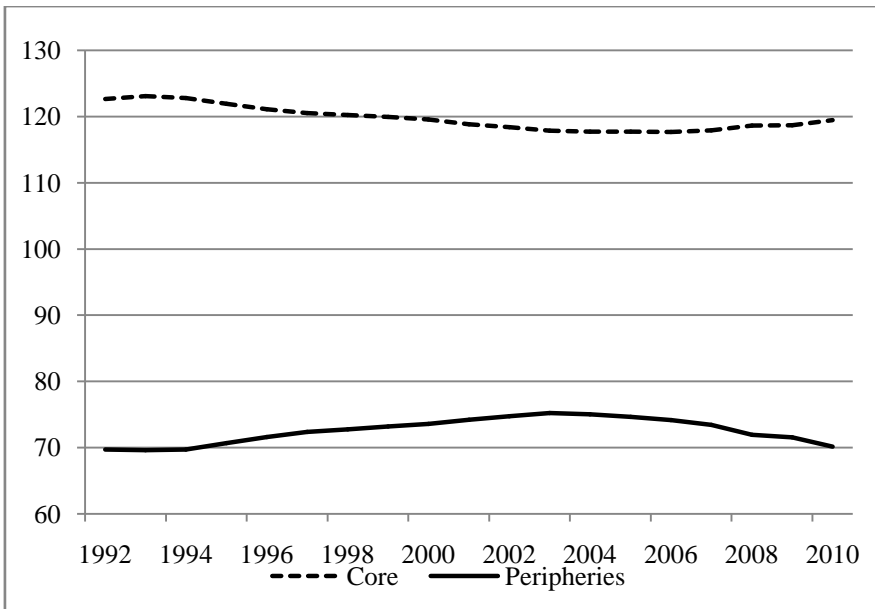


Figure 3. Relative real GDP per capita (average=100, 1991-2010)

Source: IMF, Bloomberg

Yet Holinski, Kool, Muysken (2010) demonstrate that the economic convergence hypothesis does not stand up to the empirical facts. They document that real income differentials are persistent (see Figure 3), total factor productivity remains low in the *Peripheries* (with the exception of Ireland), and the terms of trade data surprisingly do not confirm a substantial loss in international competitiveness as the inflation differentials could initially suggest – at least not to the degree that would justify the magnitude of the current account deficits in the peripheral economies. They argue that the main drivers of the current account dispersion are the private sectors – households and firms in the *Peripheries* – for which they find a tremendous decrease in savings, from about 24% of GDP in the beginning of the 1990s, to about 14% of GDP in 2007. This was reflected in a corresponding increase in consumption and, to a lesser extent, investment.

Consumption and savings patterns in peripheral countries did not adjust to the higher burdens resulting from net factor income payments (mainly due to the increasing cost of servicing of the accumulating debt) and declining current transfers (partly due to the enlargement of the EU and redirection of the EU funds towards the new member states). The imported capital was wasted in the public administration, misallocated in the over-inflated property sectors, and/or spent on other poor quality investment.

The necessary high productivity growth generally was never achieved. Over the period 1997-2007, labour productivity per employee grew on average by 1.3% per year in the *Peripheries*, compared to 1.2% annual growth in the *Core*. Over the same period, per capita employee remuneration rose by an average annual rate of 5.9% in the *Peripheries*, considerably faster than the *Core*'s average of 3.2%. As a result, unit labour costs rose by 32% in the *Peripheries* from 1997 to 2007, compared to a 12% increase in the *Core* (Dadush 2010).

When relatively inefficient economies were faced with the global slowdown and, concurrently, international investors started to demand higher yields on bonds, it turned out to be too much to withstand by the *Peripheries*. Ireland, which was an exception in terms of high productivity, and where the problems originated mainly in the banking sector and the housing bubble, is already able to provide the first signs of recovery. Other peripheral economies seem to have bigger structural problems. It remains an open issue, if the currency union with its fixed nominal exchange rates and common monetary policy suits best all member countries of the Eurozone.

2.2. Monetary policy inflexibility

Before the creation of the monetary union, the imbalances between the various economies of the EU could have been corrected by nominal exchange rates and interest rates adjustments. Market forces, as well as the monetary policy of such a country with permanent current account deficits and growing indebtedness, would eventually lead to currency devaluation. By depreciating its own currency, the country would increase its international competitiveness and improve its trade balance. At the same time, it would also decrease the real value of its debt denominated in the national currency³. However, in the case of a monetary union, such adjustments simply are not feasible. Thus, if there are no valuation gains, persistent current account deficits lead inevitably to the accumulation of net foreign debt. Higher indebtedness means higher costs of servicing that translate into higher net factor income payments and a still poorer current account balance. This vicious circle may end in defaulting in the longer term, unless the situation is cured by structural reforms that guarantee high productivity and the better international competitiveness of the infected country.

Since the EMU established a single monetary policy, no individual member state can act individually in this respect. Paradoxically, this creates a higher default risk of a euro-country than in the case of a non-euro country. A state that has its own national currency, and is able to conduct sovereign monetary policy, can always increase the supply of money to repay its debt, at least as long as the debt is denominated in its national currency. As mentioned earlier, such an operation would depreciate the local currency to the benefit of the trade balance, but unfortunately could also result in high inflation.

The EMU implies also the same nominal interest rate in all member states. However, countries within the Eurozone vary in terms of the level of inflation (see Figure 4) and dynamics of development. Thus, they should optimally differ also in the levels of interest rates. Generally, prior to the crisis, the peripheral economies which exhibited inflation rates 1 to 2 percentage points higher were growing slightly faster (with the exception of Italy and Portugal) than the *Core*.

³ Devaluation of national currency may be indeed harmful, if a country is indebted in a foreign currency either via the public or private sector. For example, this was the case of many Latin and South American economies in the previous century.

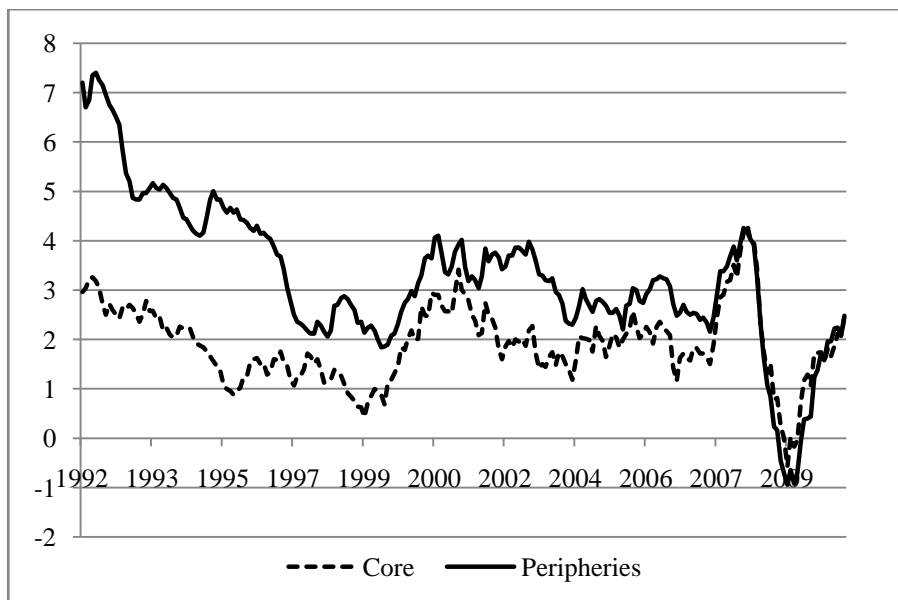


Figure 4. Consumer prices (YoY % change) 1992-2010
Source: IMF, Bloomberg

The single monetary policy of the euro was too lax for those peripheral countries that enjoyed the biggest boom (Spain, Ireland, Greece). It emphasized their inflation, put pressure on the growth of wages relative to productivity, and therefore finally contributed to the loss of competitiveness. At the same time, it might have been too tight for larger economies like Germany or France, depressing domestic demand and contributing to higher unemployment.

In the common monetary policy, it was of course impossible to differentiate interest rates. The same nominal interest rate in the whole Eurozone implied that the real interest rates were actually lower in the *Peripheries* due to higher inflation there. This constituted an additional stimulus both for consumption and investment and might have contributed to 'bubbles', mainly in the real estate and construction sectors. From 1997 to 2007, housing prices rose at an average annual rate of 12.5% in Ireland and 8% in Spain, compared to 4.6% in the United States during its bubble. Over the same period, construction as a share of gross output rose from 9.8% to 13.8% in Spain and from 7.9% to 10.4% in Ireland. In the United States, the same figure only increased from 4.6% to 4.9% (Dadush and Stancil 2010). Easy access to cheap financing encouraged indebtedness and led to waste and inefficiencies in the public as well as the private sector.

2.3. Lack of fiscal discipline and mounting public debt

The Maastricht Treaty, signed in 1992, imposes four main macroeconomic criteria on the EU countries wishing to enter the European Monetary Union and to adopt the single currency. Besides the fixed exchange rate period, low inflation and long-term interest rates, there are also important fiscal criteria. The ratio of annual government deficit to GDP theoretically must not exceed 3% and the ratio of gross government debt to GDP must stay below 60%. However, in reality, these threshold values have been anything but fixed, as Article 104c of the Treaty states that countries could exceed the 3% deficit target if “the ratio has declined substantially and continuously and reached a level that comes close to the reference value” or “excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value.” Euro area countries may similarly exceed the 60% gross debt target provided that “the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace.”

In other words, it was more a political decision if a country could become a member of the Eurozone or not, rather than being objectively determined by the fundamental economic conditions. Since it was politically unimaginable to launch the EMU without Italy, the third largest economy in continental Europe, or Belgium, home of the European capital Brussels – both countries became members despite having gross debt levels vastly exceeding the Maastricht Treaty reference value of 60%. Moreover, shortly after the introduction of the euro, European policymakers further undermined the discipline and coordination of national fiscal policies within the Eurozone. Already in March 2005, France and Germany pushed through a relaxation of the Stability and Growth Pact that earlier had been meant as the safeguard of public finances, and intended to prevent individual EMU members from running unsustainable fiscal policies. As a result, over the years, a growing number of Eurozone countries were in breach of the initial Maastricht criteria that remained mainly only as reference values. As of the end of 2010, Luxemburg and Finland were the only two countries out of the 11 initial EMU members still meeting the Maastricht criteria. The average budget deficit in the Eurozone was 6.3% and the average debt to GDP ratio amounted to 85.5%.

The *Core* was not dealing better with public finance than the *Peripheries*. Germany and France had similar scale problems as Italy and Portugal. Greece was constantly reporting the highest budget deficit in the whole EMU, but Spain and Ireland were having fiscal surpluses for many years until the end of 2007 (see Figure 5).

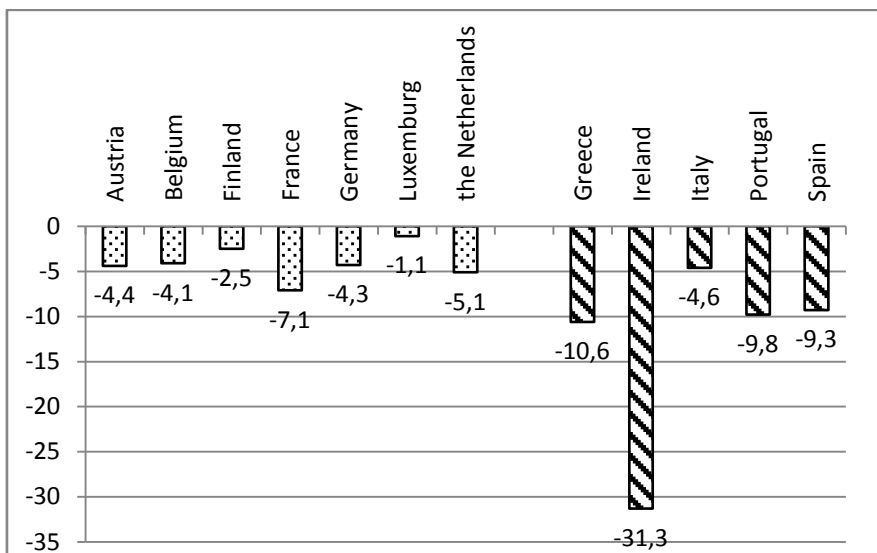


Figure 5. Budget deficit (as % of GDP) in 2010

Source: IMF, Bloomberg

However, not only the net balance of public finance matters, but also its flexibility and ability to adapt in the case of a changing macroeconomic situation. In this context, the structure and dynamics of government spending are important. In the *Peripheries*, lower borrowing costs and the expansion of domestic demand boosted tax revenue. Rather than recognize that the revenue increases from the boom might be temporary gains that should be saved, the peripheral governments accelerated expenditure with approximately double dynamics than in the *Core*. From 1997 to 2007, public spending per person in the peripheral economies rose by an average of 76% and government's contribution to GDP rose by 3.5 percentage points. Over the same period, average per capita spending increased in the *Core* by 34% and the government's contribution to GDP stayed unvarying (Dadush and Stancil 2010). It is easy and tempting to increase spending when revenue is growing. However, it is much more difficult to cut expenditure, especially when the economy slows down. There are at least two major reasons for this. Firstly, many categories of spending have a predetermined and fixed character. Once introduced, they are either socially pledged or even legally guaranteed for years to come. Cuts may provoke social unrest and/or require changes in legislation that might be politically difficult to push through.

Secondly, governments often hesitate to cut drastically public expenditure in bad times of the economy, as such a move could hurt domestic demand and deepen economic troubles. The Keynesian approach (1936), is still relatively strong among some policy makers who would rather increase the supply of money to boost the economy than consolidate the state budget. On the other hand, Balcerowicz (2011) argues that under certain conditions fiscal consolidation may turn out to be expansionary; among other factors, if the deficit reduction is achieved by expenditure cuts rather than tax increases, and the repair of public finance is focused on wages in the public sector and transfers to households, and the scale of consolidation is large in size with a long-lasting signal – such a fiscal adjustment in an open economy may actually lead to such non-Keynesian effects.

The problems of public finance have increased dramatically since 2008 as the spin-off effect of the credit crunch in the US and also the burst bubble in property and construction markets locally, mainly in Spain and Ireland. The European banks that held US toxic assets, or were involved in financing the overpriced real estate market, reported significant losses. Several European governments were forced to run huge deficits and to issue additional debt in order to provide large bailout packages to the financial sector. At the same time, European economies were faced with the global slowdown. As a result, most of the Eurozone countries suffered record high budget deficits and levels of indebtedness in the years 2009-2011 (see Figure 6).

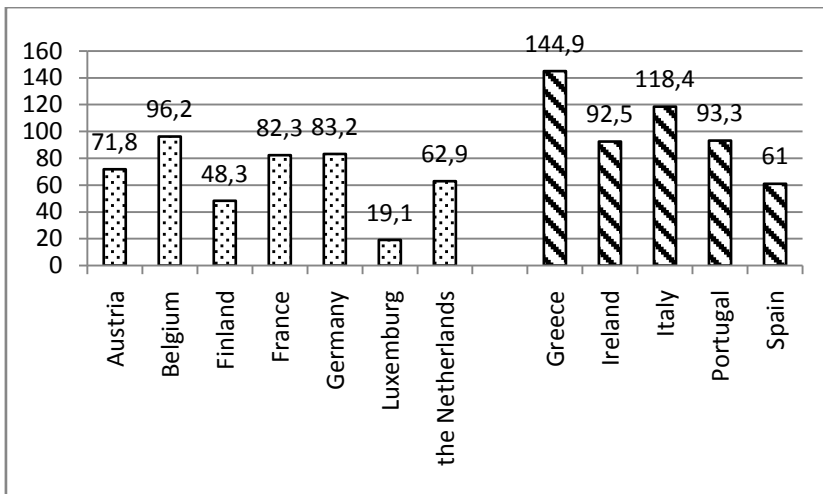


Figure 6. Government consolidated gross debt (as % of GDP) in 2010

Source: IMF, Bloomberg

In the extreme case of Greece, the total mismanagement of public finance led to such a high amount of debt that the country is not only unable to repay, but it cannot even service the ongoing interest payments. Ireland and Portugal avoided insolvency thanks to rescue packages from the ECB and the IMF. Spain and Italy are still being watched anxiously as, due to size of these economies, their bailout would constitute a true challenge.

But speaking more generally, the large public debt is not as such the root of the crisis in Europe, it is more the effect of an earlier lack of fiscal discipline and the result of external factors added on top. Historically accumulated indebtedness makes it difficult for governments to navigate public finances in the current period of the slowdown and decreasing tax revenue. This is not only the problem of financial solvency, but often the question of necessary choices when resources are limited and expenditure often predetermined. The high cost of servicing the debt consumes funds that might have been otherwise used for fiscal stimulus. Highly indebted countries may also have a problem to issue large amounts of new debt if money is needed for new bailout packages to the financial sector contaminated by the bankruptcy of Greece or the potential insolvency of another peripheral country.

2.4. The Eurozone banking crisis

The first symptoms of a banking crisis in Europe appeared in 2008, when the sector was contaminated with toxic assets linked to the US credit crunch. Major European financial institutions suffered severe losses and needed recapitalization, state guarantees or other forms of public aid. At that time, Ireland was the only Eurozone country where the banking crisis emerged due to domestic factors, namely the burst property bubble and the high leverage in the private sector. By the end of 2009, the situation seemed to be under control and already on the way to recovery, when the new wave of the crisis came. In 2010 and 2011, Eurozone's financial sector suffered further record high losses resulting from write-offs of Greek debt and revaluation of bonds of other peripheral governments for which market yields jumped higher.

There are several systematic characteristics of the Eurozone's banking system that, on the one hand, make it far more exposed and sensitive to sovereign debt crisis and problems in peripheral economies, and on the other hand make the consequences of trouble in the banking sector difficult to manage and highly dangerous to the whole European and global real economy. First of all, the Eurozone's banking system is very large relative to

the size of the overall domestic economies, with the average financial institution's gross debt equal to 143% of GDP (the US average is equal to 94%). Secondly, bank leverage in the euro area is very high at tangible assets 26 times common equity (the US level is 12 times)⁴. Thirdly, and most importantly in the context of the sovereign debt crisis, European banks tend to own a lot of the debt issued by their own governments. Finally, they have also been actively involved in financing poor quality investments in the *Peripheries*. The banking system, via cheap financing and relatively high risk appetite, was fueling the economic boom, but this also led to the dynamically growing indebtedness of the private sectors in the peripheral countries. This was an important channel of capital flows from the *Core* to the *Peripheries*.

The large scale of the euro area banking system makes it problematic for the already indebted European governments to credibly issue new guarantees, or use public funds, for yet another wave of recapitalization if their domestic banks are in need. At the same time, the high leverage of the European banking system actually increases the risk that this need may materialize, as only a thin layer of common equity capital is available as first-loss risk capital (tier 1). The large bank ownership of government debt in the Eurozone presents a particularly obstinate worry. Under the Basel Agreements, banks are not required to set aside any risk capital to offset any future losses on government bond holdings. Sovereign bonds have by definition been considered risk free, including, until recently, Greek bonds. Consequently, when government debt must be restructured, it imposes upon banks credit losses for which they have previously set aside no capital. If the losses are substantial, the banks will require rescue packages financed by domestic taxpayers, other EMU partners (also already highly indebted), and possibly international aid. There is consequently a large degree of interdependence between the financial solidity of the banking system and government solvency across the Eurozone. Moreover, losses in banks may also come from the private sector, particularly in the *Peripheries* where the high leverage has been confronted with structural problems and inefficiency exposed in the slowdown. As the banking system was one of the channels of capital flows within the Eurozone, there is also a high risk of contagion among the EMU states.

⁴ Source: IMF Global Financial Stability Report, September 2011, available on-line <http://www.imf.org/External/Pubs/FT/GFSR/2011/02/index.htm>

3. BEHAVIOURAL AND PSYCHOLOGICAL BIAS

The mistakes of the decision makers of a psychological nature are not the unique root of the recent trouble in the Eurozone. Nevertheless, there is no doubt that behavioural bias greatly contributed to the development of the problems at first, and also demonstrated themselves later, when the crisis was already becoming apparent. Among the factors that might have underlined the advance of the crunch are: the extrapolation bias, problems with the time horizon of decision makers, underestimation of risk due to overconfidence, and difficulties with the probability estimation of extreme scenarios. The “Euro heuristic” seems to be responsible for overseeing the risk disparity among various members of the EMU. Cognitive conservatism and loss aversion explain why it takes so long to face the truth. Herding, the activities of hedge funds and the role of rating agencies are also discussed in the next sections of this paper.

3.1. Extrapolation bias and the time horizon issue

Extrapolation error consists in attaching too much weight to past trends, particularly those observed during a relatively short period of time and inadequately extending them onto subsequent future periods. An example of the extrapolation error is assuming the same sales or profit dynamics of a given corporation in long-term financial forecasts as those observed during the last several reporting periods, often without consideration for the extraordinary events that could have affected the sales and profits levels only temporarily during the past periods. It should be remembered that an Excel spreadsheet is only a tool for the development of forecasts and that it accepts all values of dynamics that are entered into it. Extending a forecast onto several future periods with the assumption of a constant high pace of growth may lead to absurd results. The psychological grounds for the extrapolation error are related to the **representativeness heuristic**, and in particular its variation referred to as the **short-series bias**. It consists in premature conclusions and generalization of patterns on the grounds of a too limited amount of observations (Gilovich, Vallone, and Tversky 1985).

Another problem is the inadequate time perspective. Behavioural finance provides evidence that decision makers are usually short-sighted. People focus mostly on the nearest future and fear an immediate loss most, but strongly discount more remote outcomes (Kahneman and Tversky 1979, Benartzi and Thaler 1995, 1999). The evaluation period for ordinary

consumers most often equals the interval between their salary payments, i.e. one month. The evaluation period for investors and businesses is usually one year. Politicians pay a lot of attention to the direct political impact and media coverage in response to their decisions. Their evaluation period rarely exceeds the time till the next elections. Yet the laws of macroeconomics usually demonstrate themselves in a long-term horizon. Thus, there is a danger that due to human short-sightedness, the rules of macroeconomics may be overlooked and forgotten, at least temporarily, until their consequences are revealed in their full strength.

During the last particular economic boom, in some of the Eurozone peripheral countries (Ireland, Spain, Greece) consumers, investors, and politicians commonly committed the extrapolation error that additionally was enhanced by their short-sightedness. The creation of the EMU and the introduction of the common currency gave a strong initial growth impulse. People, so much focused on the present, extrapolated the good situation into the future, failing to see the long-term consequences of the EMU and the associated risks. The current prosperity built up confidence and created expectations for more growth. Based on that conjecture, individuals consumed too much, businesses invested far beyond their capacities, and politicians spent irresponsibly. On the one hand, it created a bubble, and on the other, high consumption and high investment led to a low savings rate and overleveraging of the peripheral economies.

3.2. Underestimation of risk

It can be said that greed blinded consumers, businesses, and politicians. Risk was often forgotten in the midst of the chase after consumption, higher returns and more popularity among the voters. Several strong behavioural inclinations, mostly related to overconfidence, were also conducive to the underestimation of risk. The literature distinguishes four general manifestations of overconfidence: **above-average effect**, **calibration effect**, **illusion of control** and **ungrounded optimism** (Odean 1998, Barber and Odean 2001, Glaser and Weber 2007, Szyszka 2009). Each of them – putting too much weight on own analysis, underestimation of variance, false conviction about the ability to control random processes, or unrealistic wishful thinking – results in unnecessary high risk acceptance or risk underestimation.

Wishful thinking is often observed among politicians, economists and financial analysts. Montgomery (1997) collected official macroeconomic

forecasts about inflation, GDP growth, unemployment, etc. estimated by governmental bodies, agencies, and various experts throughout many years. Then he performed an ex-post comparison of the planned values with the values actually observed. It turned out that the forecasts of unfavorable effects (e.g. inflation, unemployment) were systematically underestimated, whereas predictions of positive effects were generally overestimated. Similarly, Olsen (1997) demonstrated excessive optimism among financial analysts.

Overconfidence is supported by the **self-attribution bias** which consists in attributing successes (even random ones) to ourselves and our capabilities, and explaining failures by independent factors, e.g. bad luck, mistakes of others etc. (Taylor and Brown 1988). The lack of objectivity in assessing successes and failures limits our ability to learn from our own mistakes and enables people to permanently display overconfidence.

When analyzing their convictions, people not only react too slowly to the new information, but very often they show the so-called **confirmation bias**, i.e. they tend to seek information that would confirm their previously adopted hypothesis and simultaneously avoid confrontation with facts that could contradict their existing opinion or interfere with their previously adopted approach to a specific problem (Wason 1966, Lord, Lepper and Ross 1979). When assessing the true cause-effect relationship between two variables (e.g. between the application of a specific investment strategy and the achieved results), people focus on cases where both variables were observed simultaneously (e.g. a specific rule was applied and above-average outcome was achieved) and simultaneously they seem not to notice examples of situations in which only one variable occurred and the other did not (e.g. a given strategy did not bring about the expected outcome or extraordinary results were achieved without the specific rule being applied). As the result of this selective approach, the decision-maker may develop the so-called **illusion of validity**, i.e. sticking to wrong convictions or even enforce them, at the same time demonstrating overconfidence (Einhorn and Hogarth 1978).

Overconfidence and unrealistic optimism were conducive to the underestimation of risk, in particular the confirmation bias prevented certain warning signals that could have eroded investors' faith in the never-ending bull market. During the relatively long period of market prosperity, citizens got used to high consumption and investors got used to easy and high profits. As the result of the self-attribution effect, many market players attributed the profits primarily to their own skills, rather than to the general market

situation. Previous growth intensified their confidence and encouraged them to take even higher risks.

The underestimation of risk was also fostered by people's tendency to treat unlikely things as if they were completely impossible and, on the other hand, to treat highly probable events as if they were certain to occur. Hence, it was not accepted that an unfortunate coincidence of several macroeconomic factors may ultimately lead to a sequence of negative events that, individually, seemed very unlikely. Similarly, the risk of failure of positive developments that were assessed as highly probable and treated almost as a certainty, was played down. The reality showed that the coincidence of such almost impossible situations not only came true, but also proved to have a colossal impact on the entire global economy.

People's inclination to exclude the possibility of the occurrence of unlikely developments, and simultaneously to treat highly probable scenarios as certain, was empirically documented by Fischhoff et al. (1977), and theoretically it was also accounted for in the prospect theory of Kahneman and Tversky (1979). According to the prospect theory, the total assessment of utility of a specific decision-making scenario is affected by two functions that are subjective for each decision-maker: the S-shaped value function and the weighing function. Kahneman and Tversky (1979) argue that one of the properties of the weighing function is its discontinuity for the probability values close to zero and close to one. The function assigns the value of zero to very low probability arguments, and the probability arguments close to one are assigned the value of one. This clearly demonstrates the investors' inclination to treat unlikely events as impossible and the highly likely ones as absolutely certain.

3.3. The Euro heuristic

The human mind is flooded with plenty of news every day. Since our information processing capacity is limited, there is a need for simplification procedures when building the perception of the surrounding reality and making decisions. These abbreviations in thinking, called heuristics by psychologists, are usually a good way of dealing with too much information and arriving quickly to an opinion about a certain subject. However, heuristics sometimes lead to serious misjudgments (Simon 1955, Tversky and Kahneman 1974).

It looks like the market participants were subject to the "Euro heuristic", sticking the same "Euro-label" on all countries of the EMU. This led to a

situation that financial markets underestimated the risk disparity among the members of the Eurozone and treated them too homogeneously. As a result, the nominal cost of financing was very similar in all economies of the EMU, and taking into account the higher inflation, the effective real cost of financing was even lower in the Peripheries, despite the higher risk. For example, in 2007 the average annual spread between 10-year government bonds of Greece and Germany was only 0.27 percentage point⁵.

There are at least two psychological effects that might have supported the Euro heuristic. The **halo effect** causes someone who likes one outstanding characteristic of an object to extend this positive evaluation also on other features of that object. People notice predominantly the most visible characteristic and base on it their entire opinion about something or somebody without taking into account other details (Thorndike 1920, Nisbett and Wilson 1977, Rosenzweig 2007). The halo effect is related to the **availability bias** (Kahnemann and Tversky 1974). When judging the probability of an event, people often search in their memories for the relevant information. But it turns out that not all the information is equally available for human minds. More recent events, more salient or those from personal experience, are easier recalled and weigh more heavily. As a result, our estimations of probability are often distorted.

Since it was launched, the euro received a lot of positive publicity. It was praised as Europe's great unifying achievement and shown as a synonym of economic strength and solidness. Until mid-2008, the euro was in a long-term appreciation trend against the US\$. Such a situation provided sufficient grounds for the halo effect and the availability bias. Participants in the financial markets automatically extended their favourable opinion about the euro to all the countries that had adopted the common currency. Other characteristics of particular euro-economies that might have put a different light on risk assessment and valuation of debt were disregarded.

3.4. Bad news travels slowly

The truth about the Greek budget deficit and the level of indebtedness was known at least since late 2009. Since then Greece was in practice, bankrupt but no-one wished to admit it. Despite the bad news becoming public, we saw a relatively small impact on the financial statements of

⁵ Source: Eurostat

European banks through the whole of 2010. Many more write-offs occurred as late as 2011. Someone may ask why it took so much time to face the truth.

Behavioural bias provides again a helpful explanation. There are at least three strong human inclinations that may explain the reluctance to accept the bad news. **Over-optimism** or **wishful thinking** makes us believe that positive outcomes are still possible, even if realistically the situation is hopeless. **Cognitive conservatism** (Edwards, 1968) is responsible for the underweighing of new evidence contradictory to an earlier perception. People unconsciously undermine the meaning of new contra-facts and stick to their earlier conviction. But most importantly, **loss aversion** is a very strong inclination that discourages the admittance of definite failure. As predicted by the prospect theory of Kahneman and Tversky (1979), decision makers are prepared to take high risks if only they can postpone suffering the ultimate loss or get a chance for a reversal. Loss aversion is actually one of the strongest and most documented behavioural bias in financial markets (see Szyszka 2009 for an extensive review).

3.5. Herding, hedge funds, and rating agencies

Herding, in the financial world, means making decisions based on the observation of other market participants, rather than based on their own information and analysis. In the context of the Euro crisis, herding manifested itself both during the prosperity period and when the problems already started. During the boom, herding among consumers and investors drove the prices up, particularly in real estate. People were ready to pay large amounts of money not because of their own valuations, but because they saw other people buying and thus expected prices to reach even higher levels. There was also herding among banks and other financial institutions that hurried to finance the over-inflated development projects in the *Peripheries*. While competing for the market share, the institutions were copying each other's actions and often disregarded risk. Competition increased additionally when foreign banks, mainly from other EU countries, decided to enter the credit market in the *Peripheries*. This was the case particularly in Ireland, where the banking sector faced strong competition with new domestic players and entries from the UK⁶. For example, the typically

⁶ Misjudging Risk: Causes of the Systemic Banking Crisis in Ireland. Report of the Commission of Investigation into the Banking Sector in Ireland, March 2011, available online <http://www.bankinginquiry.gov.ie>

conservative Bank of Ireland with over 200 hundred years of history, and the Allied Irish Bank with its roots dating back to the early nineteenth century, felt forced by the increasing market competition to employ risky strategies. One of the most aggressive players in the market was the relatively young Anglo Irish Bank that had a heavy exposure to property lending, with most of its loan book being builders and property developers, and sophisticated wealth management and treasury divisions with operations worldwide.

Herding has also been apparent in financial markets, only since the crisis started. In this context it is worth mentioning the activities of hedge funds and the role of rating agencies. The statistics of open derivative positions, particularly the number of Credit Default Swaps (CDS) on Greek bonds, the short selling of the euro, media interviews with key players and public commentaries of respected analysts – all these may indicate that at least until the end of the third quarter of 2011, hedge funds bet on the default of Greece and the euro deprecation against the US\$. There are over 2000 hedge funds in the US. The top 225 of them have US\$ 1.3 trillion assets under management, the largest one – Bridgewater Associates – has US\$ 58.9 billion⁷. With such a scale of operations that additionally may be enhanced by an easy access to high leverage, herding hedge funds are able to influence markets, even such a liquid and deep market as the exchange EUR/US\$. Political leaders in Europe have been recently attacking the role of hedge funds and other financial speculators, while the European Commission has been investigating their activities with a view to tighter regulation. On December 1st 2011, the European Parliament officially banned the so called ‘naked transactions’ on CDS, this means engaging in a credit default swap without actually holding the underlying bond or other instrument for which a CDS would work as an insurance. However, this ban was more a political gesture and remained rather ineffective in financial markets. European regulations are not binding for hedge funds operating outside of the EU, even if those funds engage in speculation on instruments related to European debt or currency.

A more effective way of winning the fight against speculators has been elaborated by managing the ‘controlled insolvency’ of Greece and structuring a special program of ‘voluntary’ exchange of bonds as a form of debt reduction. On March 1st 2012, The International Swap and Derivatives Association (ISDA) officially confirmed that a voluntary exchange of bonds does not constitute a so called ‘credit event’, i.e. it does not activate

⁷ Hedge Fund Research Industry Report www.hedgefundresearch.com

payments for CDS holders. On March 9th, the same body declared a ‘credit event’ only with respect to those bonds issued under Greek law that had not participated in the voluntary exchange program and were forced into the reduction scheme under a special bill of the Greek Parliament. This event activated CDS to the value of approximately US\$3.3 billion⁸ – a relatively small amount compared to the scale of the debt reduction program that amounted to just under US\$140 billion.

The rating agencies constitute another category of institutions that play a prominent role in enhancing herding in financial markets. Market participants often pay a great deal of attention to ratings assessed by respected third parties, and take the information included in a rating for granted – with no need for further own analysis. A change of rating may work as a self-fulfilling prophecy. For example, as a result of a downgrade, investors consider the issuer more risky and thus require higher rates of return. This translates to higher cost of debt servicing and a potential problem with re-financing. If the downgrade is severe, it may end-up with the insolvency of the issuer even if, prior to the downgrade, the situation was not so dramatically bad.

The rating agencies were first under a lot of criticism during the US credit crunch, because they had failed to recognize the systematic risk associated with mortgage-backed securities. The rating agencies had granted favourable ratings to instruments that soon after were worthless and toxic to the whole financial system. The same organizations received a lot of the blame during the current euro crisis. Initially, they failed to recognize the vast differences and the risk disparity among the EMU debt issuers. Until 2009/2010, Ireland’s and Spain’s ratings were equal to Germany’s highest possible rating, a triple A level. The agencies were also very late with the decision to downgrade Greek bonds to the non-investment level. Greek bonds had already been trading at yields appropriate for junk bonds long before the actual downgrade came. On the other hand, the agencies overreacted in the case of Portugal and Ireland, downgrading them to the non-investment level similar to Greece, despite the much better fundamentals of those economies and disregarding the fact that both countries complied with the IMF restructuring programs.

Gärtner, Griesbach, Jung (2011) provide empirical evidence for the agencies’ overreaction. Regressing historical evaluations against fundamentals, they demonstrate that the previous practices of the agencies

⁸ ISDA: *Greek Debt Restructuring Triggers CDS Payouts*, The Wall Street Journal, March 9th, 2012

and the current situation in some of the PIIGS countries did not justify such heavy downgrades. It is also important to notice in their study that the arbitrary (i.e. not attributed to changes in fundamentals) component of the rating actually impacts the cost of debt. This observation confirms the power of rating agencies to influence the market and highlights the self-fulfilling character of the unfavourable rating.

CONCLUSIONS

The current state of affairs in the Eurozone is the result of complex and co-existing factors that generally fall into three main categories: political, economic, and behavioural. This paper focused predominantly on the latter two.

The situation in the Euro area is often described as the ‘indebtedness crisis’. However, the excessive public debt is the result of, rather than the primary reason for, the trouble. The true roots of the problems lay much deeper. The fundamental differences among the countries constituting the European Monetary Union and the lack of coordination and discipline in their fiscal policies seem to be the underlying source of the crunch. Strategic reasons and the primacy of politics over economics gave birth to the union comprised of the economies far more diverse than what Mundell’s (1961) Optimal Currency Area or other economic theories had predicted as feasible. A common monetary policy could not fit all the dissimilar members of the EMU, and in the end it was too ‘loose’ for the *Peripheries* and too tight for the *Core*. Monetary policy was also uncoordinated with the fiscal policies of individual countries that generally lacked budgetary discipline. There was not even an institutional framework for such coordination. What is more, the *Peripheries* were having a persistent current account deficit that was financed by the inflow of funds from the *Core*. The growth in the *Peripheries*, to a large extent, was fueled by a credit bubble. As the capital productivity was too low and the convergence process too slow, such a situation could not be sustainable in a longer horizon. Gomulka (2012) states that “a significant part of the confusion in the debate concerning the present crisis in the Euroland, and the needed responses to it, comes from the uncertainty about the weight of the external shock in causing the crisis versus the weight to be attached to the long-standing internal problems of the Euroland itself”. In my opinion, the external shock, i.e. the US credit crunch and the global economic slowdown, only quickened the breakout of the European crisis, to which the Eurozone in its existing shape had anyway been condemned, but otherwise it would have happened maybe some time later.

Behavioural bias and inclinations were not the grounds for the crisis *per se*. However, they helped it build up, for instance by the extrapolation error, the development of speculative bubbles, the underestimation of risk, and the “Euro heuristic”. Behavioural aspects demonstrated themselves also after the crisis had already been apparent. Cognitive conservatism and loss aversion made the bad news travel more slowly. Herding and speculation in debt and currency markets added extra volatility and made the whole situation more difficult to handle for the sake of stability in the financial markets.

As the last thought of this paper, it is worth to point at the similarities between the US credit crunch and the Eurozone crisis. In both cases, the source of the trouble is in macroeconomic imbalances (Asia and the Gulf exporting a lot of goods to the US, the *Core* exporting a lot to the *Peripheries*; the current account deficit in the US financed by the inflow of funds from Asia and the Gulf versus the current account deficit in the *Peripheries* financed by the rich *Core*; the budget deficit and the growing public debt in the US and in many states of the Eurozone; cheap financing leading to bubbles in the property sector in the US and in the *Peripheries*, mainly Spain and Ireland). In both cases the major problem for the financial markets is the fact that assets that had been considered low-risk turned out to be indeed risky (mortgage-backed securities in the US, and sovereign debt in the Eurozone). Behavioural bias that helped the crisis build up, and demonstrated itself later during the crisis, was also similar in the US and in Europe (Szyszka 2010). The response of the Fed and the ECB to the problem was similar too, with both institutions providing liquidity to the financial system, although the ECB seems to be far more concerned with inflation and tries to limit money creation. Finally, in both cases the undertaken means are relatively short-sighted and give only an immediate effect. The underlying sources of both crises – which are the earlier mentioned macroeconomic imbalances, resulting from the structural problems of the US economy and its position in the global context, and the problems of the *Peripheries* in relation to the *Core* and the rest of the world – seem to be far from the true solution.

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Received: April 2012, revised: July 2013

Acknowledgements: *This paper has been greatly inspired by a public debate that I had the pleasure to hold with Minister Philippe Maystadt at the Warsaw School of Economics in March 2012. I would like to thank the organizers – The Center for Social and Economic Research CASE, The Embassy of The Kingdom of Belgium, and the Warsaw School of Economics – as well as participants of that event for the inspiring academic discussion. I am also grateful to Leszek Balcerowicz, Waldemar Frąckowiak, Stanisław Gomułka, Yochanan Shachmurove for their comments on earlier versions of this paper. I also wish to acknowledge with thanks data collection efforts by Adam Zaremba – my doctoral student.*

All mistakes remain my sole responsibility.