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Quo Vadis, Euro?

Abstract. *Europe faces significant challenges. The economic ones are by far the most severe, yet there are moral, social, and philosophical issues as well. European economists are still busy trying to remedy the great crisis by monetary bridging, focusing only on liquidity, and buying time. The solution awaits either the tighter integration, or the break-up, of the euro area. This paper presents alternative scenarios of the future in the euro zone, and thus Europe. More intensely now, than ever before in the past, Europeans expect antidotes to such matters, embracing their lives in a much broader sense, involving morality, philosophy, as well as social issues (ex. the ageing of Europe).*

Keywords: *economic growth, Strategy 2020, eurozone, cluster analysis, Ward's method*

1. Introduction

Austerity measures instituted by some of the EU member states to mitigate the sovereign debt crisis have led to economic stagnation or very moderate GDP growth. A number of key European economies have to refinance large amounts of government bonds that are coming due. Countries which have already been excluded from capital markets need additional funding from the European Financial Stability Facility (EFSF), the International Monetary Fund (IMF), and the European Commission. At the same time, policymakers have to focus on competitiveness, despite the focus diverging across the euro zone. The situation in the euro area also affects countries which are not members of the monetary union.

This paper aims to predict the most likely trajectory of developments involving the euro. With this focus in mind, following an introduction, the second chapter describes the possible scenarios for developments in the euro area; the third chapter provides an account of the plans for Europe in 2020 which were proposed by the European Commission and may have an impact on the euro; the fourth part delineates the methodology and overview data for a cluster analysis which divides European countries into homogeneous clusters of those which may or may not achieve European targets, as well as their own national targets; and the fifth chapter delivers the outcomes of the cluster analysis. This paper is concluded with a prediction concerning the European countries which are likely to form the so called “core” of the eurozone in case the Economic and Monetary Union (EMU) breaks up.

2. How European economic policies might proceed

The introduction of the euro brought a number of significant benefits for the member states. As a result of the removal of nominal exchange rates, euro area member states experienced a reduction in transaction costs, an increase in trade within the euro area, a rise in competitiveness as companies benefited from the economies of scale and scope, in addition to investment and consumption being boosted by low interest rates. However, not all of the countries used cheap funding to fuel competitive growth.

In regards to the eurozone’s weaknesses, there were no adequate adjustment mechanisms to cope with the diverging performance of its member states. Being no longer able to devalue their local currencies, members have had to pay more attention to increases in unit labor costs, which should not exceed the growth of productivity, otherwise leading to a decline in competitiveness. Unfortunately, this is what happened in the countries of Southern Europe. The theory of Optimum Currency Area (OCA) demands flexible real wages, as well as a high degree of capital and labor mobility for the OCA to be able to sustain temporary and asymmetric shocks. Another possible option is fiscal transfers which can help reduce economic imbalances. Particularly large imbalances have emerged between Northern and Southern EMU member states.

There are many scenarios projecting the further evolution of the euro area. Perhaps the most relevant projections can be found in the McKinsey 2012 analyses.[1] According to McKinsey, European economic policies may proceed in four directions: monetary bridging, a fiscal pact, closer fiscal union, and a euro break-up.

Monetary bridging is a label for short-term policy action focused on providing liquidity; this is conducted by governments, the European central bank, as well as the European Financial Stability Facility (EFSF), the International

[1] Cf. McKinsey, *The future of the Euro. An economic perspective on the eurozone crisis*, McKinsey&Company, 2012, www.mckinsey.com/app_media/reports/financial_services/future_of_the_euro.pdf [10.09.2012].

Monetary Fund (IMF), and the European Commission. This scheme, however, cannot regain the trust of financial markets and would only buy time for additional long-term policy efforts aimed at setting up a sustainable solution in the medium term.

Fiscal plus pact builds on the fiscal agreement which was approved at the European Union Summit on December 9, 2011. It includes three aspects which are crucial for the stability of the euro area. First of all, more effective EMU governance structure has to be created in order to ensure the coordination of economic policy, consistent implementation of common regulatory rules and supervision of pan-EMU financial institutions, the restructuring of the eurozone banking sector, and the monitoring of extensive structural reforms in highly indebted EMU member states. Secondly, investment in growth-supporting infrastructure and education are necessary. Furthermore, the EMU needs to re-establish investor confidence in the bond markets. The fiscal pact focuses on structural reforms, liquidity provision and debt reduction.

Closer fiscal union takes fiscal coordination beyond the borders of member states, however no such step has been agreed upon by the Europeans. This scenario may involve such measures as Eurobonds issues, EMU-level taxation, an enlarged degree of joint economic government, and a substantial move towards more fiscal federalism, including increased permanent transfer payments.

Euro break-up is the last of the possible scenarios, and no longer a taboo topic. Within this scenario, the so called PIIGS countries (Portugal, Italy, Ireland, Greece, and Spain) would leave the EMU. The remaining countries would strictly adhere to the Stability and Growth Pact and form a new, “Northern euro”. In this case, large short- to medium-term costs are to be expected, and potentially severe social consequences may follow.

The first scenario, which has been clearly taking place over the last several months, does not really address the problem. The second and the third scenario may be pursued in an attempt to strengthen Europe, its economy and its global competitiveness. If the second and third scenarios do not unfold at the right time, the implosion of the euro area will be inevitable.

3. The European objectives by 2020 and their feasibility

The European Commission has adopted the Strategy for Europe 2020, which is focused on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate/energy. Why would this plan be more credible than any of the other plans adopted by the Commission and then not carried into effect? The situation is already more than difficult.

The Europe 2020 Strategy puts forward three mutually reinforcing priorities:

– Smart growth: developing an economy based on knowledge and innovation.

– Sustainable growth: promoting a more resource-efficient, greener and more competitive economy.

– Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

The European Union has thus defined where it wants to be by 2020. For this purpose, the Commission has proposed the following headline targets:

– 75% of the population aged 20-64 should be employed,

– 3% of the EU's gross domestic product should be invested in research and development (R&D),

– the proportion of school dropouts should be under 10%, and at least 40% of the young generation should have a tertiary degree

– ambitious energy policy goals are to be achieved,

– 20 million fewer people should be at risk of poverty.

Table 1. Europe 2020 targets and national programs (1)

Member state targets	Employment rate (%)	R&D expenditure (GDP %)	CO^2 emission reduction targets (%)	Renewable energy (%)
EU headline target	75	3	–20 (compared to 1990 levels)	20
Estimated EU	73.70-74	2.65-2.72	–20 (compared to 1990 levels)	20
DE	77	3	–14	18
CZ	75	1 (public sector only)	9	13
HU	75	1.8	10	14.65
PL	71	1.7	14	15.48
SK	72	1	13	14

Source: The European Commission and national programs.

These targets are interrelated and critical to European overall success. However it is doubtful whether they can be accomplished if the current procedures and "economic management" of Europe remain unchanged.

In the past decade, the EU member states followed divergent economic trends, which exacerbated the gaps in competitiveness and led to macro-economic imbalances within the EU. To avoid this happening in the future, the Commission has proposed a new surveillance mechanism to identify and correct such issues much earlier. A complementary agenda with additional reforms called the "Euro Plus Pact" has been agreed to among euro area member states, as well as six non-euro area countries which have chosen to sign up: Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania. It focuses on four areas: competitiveness, employment, sustainability of public finances and reinforcing financial stability. The Pact was signed by EU leaders in March 2011. All of the 23 signatories are committed to implementing the reforms in every detail. The remaining four member states of the EU are free to sign up if they wish.

Table 2. Europe 2020 targets and national programs (2 – cont.)

Member state targets	Energy efficiency – reduction of energy consumption in Mtoe	Early school leaving (%)	Tertiary education (%)	Reduction of population at risk of poverty or social exclusion in number of persons
EU headline target	20% in increase in energy efficiency equaling 368 Mtoe	10	40	20,000,000
Estimated EU	206.9 Mtoe	10.30-10.50	37.50-38.00	Result cannot be calculated because of differences in national methodologies
DE	38.30	Less then 10	42	330,000 (long-term unemployed)
CZ	n.a.	5.5	32	30,000
HU	2.96	10	30.3	450,000
PL	14.00	4.5	45	1 500,000
SK	1.65	6	40	170,000

Source: The European Commission and national targets.

The national programs were elaborated in 2010 and approved in 2011. Although the aims have thereby been transposed into national legislation, their practical implementation in an environment characterized by sluggish economic growth appears questionable. It is up to each country to monitor the implementation of the Euro Plus Pact and to ensure their national policies are aligned with the agreed targets.

4. Research method and input data

To identify the countries that would be able to attain the objectives proposed by the European Union by 2020, we analyzed a group of 28 European Union member states (Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia, Spain, Sweden, the United Kingdom) and Norway. Using cluster analysis, we sought to identify groups of countries whose performance was most homogenous in terms relative to vis-à-vis of the Europe 2020 indicators, i.e.: gross domestic product in purchasing power parity, research and development (R&D) expenditure as a percentage of GDP, unemployment rate, and unemployment rate among people below 25 years of age.

Ward's method is a criterion applied in hierarchical cluster analysis. Ward's minimum variance method is a special case of the objective function approach originally presented by Joe H. Ward, Jr, in 1963. He suggested a general agglomerative hierarchical clustering procedure which minimizes total within-cluster variance. To implement this method, at each step, the pair of clusters is merged which leads to the smallest increase in total within-cluster variance after the merger. This increase is a weighted squared distance between cluster centers. At the initial step, all clusters are singletons (clusters containing a single point).

The initial cluster distances in Ward's minimum variance method are defined to be the squared Euclidean distance between points:

$$d_{ij} = d(\{X_i\},\{X_j\}) = \|X_i - X_j\|^2. \tag{1}$$

It should be noted that the method is appropriate for quantitative variables, but not for binary ones.

By performing Ward's cluster analysis for 28 European Union states and Norway, first on a set of data (GDP in PPS; expenditure on R&D as % of GDP; unemployment rate; unemployment rate among people below 25 years of age) from the pre-crisis period (2007) and then on the latest available data (2011), we should be able to assess homogeneity among European countries and find out whether the crisis has influenced this homogeneity. The 2011 data for Greece was unavailable, therefore the country was excluded from the sample.

5. Outcomes of the cluster analysis

When applied to the 2007 data (pre-crisis period), Ward's minimum variance method divided the 29 analyzed countries into two main clusters. The first big (more prominent) homogeneous group (with regard to GDP, R&D expenditure, unemployment rate, and unemployment among people below 25 years of age) consisted of 9 countries: Denmark, Austria, United Kingdom, Ireland, the Netherlands, Norway, Luxembourg, Finland, and Sweden. The most homogeneous states were Finland – Sweden; Norway – the Netherlands – Ireland; and Denmark – Austria. The second largest (less prominent) homogeneous group was composed of 20 countries, with most homogeneity (vis-à-vis the indicators adopted for the analysis) found to exist between: Estonia – Slovenia – Cyprus – Lithuania; Latvia

– Malta – Bulgaria – Romania; Poland – Croatia – Greece – Slovakia; Spain – Portugal – the Czech Republic – Hungary – Italy; Belgium – France – Germany.

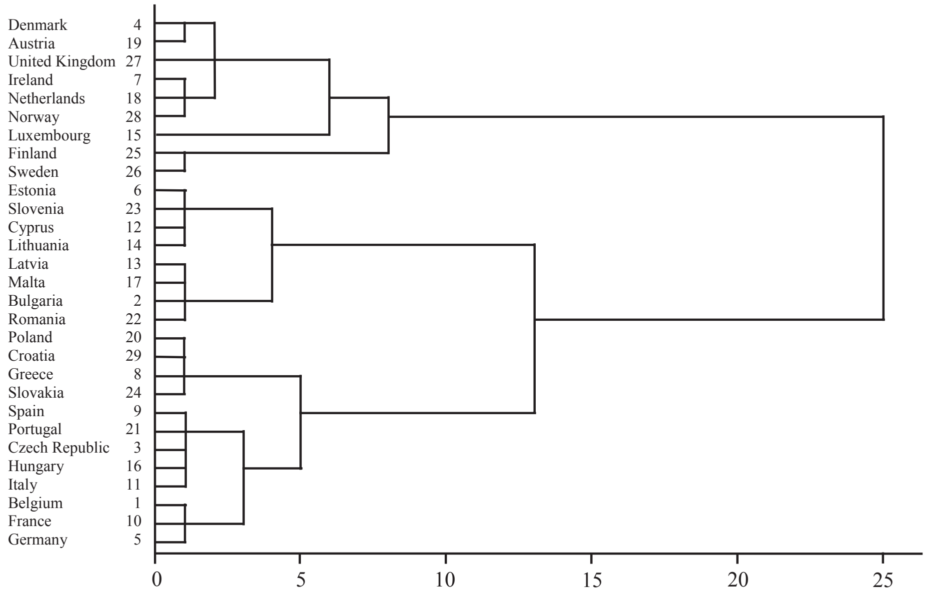

Fig. 1. Dendrogram for 29 European countries (2007)

Source: own.

When applied to 2011 data (the crisis period), Ward's minimum variance method divided the 28 analyzed countries (without Greece due to the unavailability of data) into two main clusters as well. Compared to the 2007 results, the first (more prominent) group was joined by Germany, while the United Kingdom and Ireland dropped out. Therefore, as a consequence of the crisis the prominent group shrank to 8 countries: Luxembourg, Norway, Germany, Austria, the Netherlands, Finland, Sweden, and Denmark. The most homogeneous ones were: Germany – Austria – Netherlands, and Finland – Sweden. The second (less prominent) large homogeneous group consisted of 20 countries, and the most homogeneous (vis-à-vis the indicators adopted for the analysis) countries were: Latvia – Lithuania – Slovakia – Croatia; Spain, Hungary – Poland – Bulgaria; Cyprus – Romania; Malta; Belgium – the United Kingdom – France; the Czech Republic – Slovenia; Italy – Portugal – Ireland; Estonia.

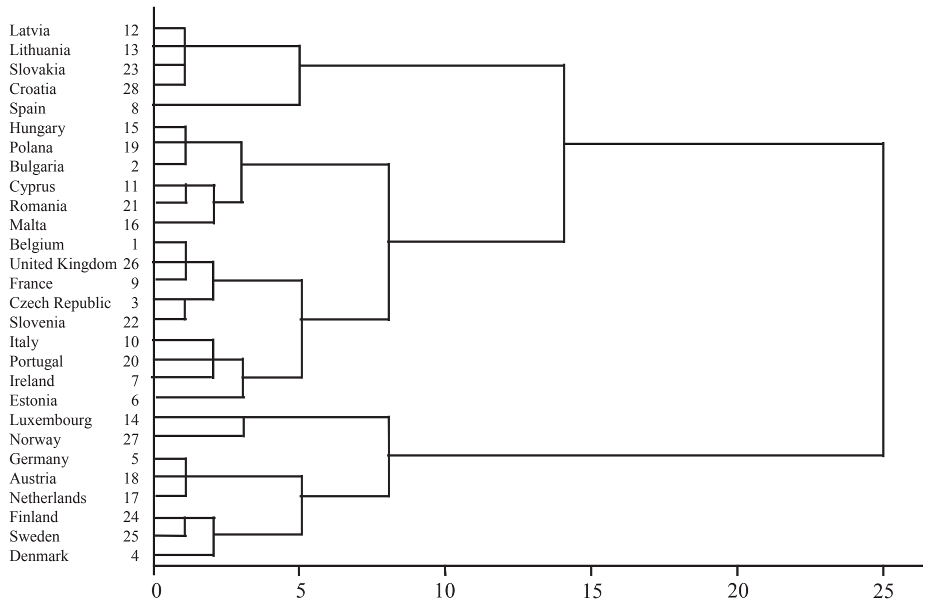

Fig. 2. Dendrogram for 28 European countries (2011)

Source: own.

The cluster analysis demonstrated that the group of the eight prominent economies have undergone structural changes and are coping with the crisis successfully, experiencing economic growth, low inflation, and a low rate of unemployment. These countries may be able to achieve the objectives set by the European Commission by 2020. In light of the analysis, the core eurozone group could be made up of Germany, Austria, Finland, and the Netherlands. The less prominent group of countries should further pursue structural changes and stringent macro-economic policies (especially euro area members).

6. Conclusion

Prior to the introduction of the euro, the hegemony of the German mark and the Bundesbank was unquestionable in Western Europe. Before the euro zone was born, there were fears that the euro would become “the German mark for all of Europe”. Yet it is evident that it could not, and cannot, function in this way. Of course, monetary unification in Europe does not make much sense without Germany. However, Germany should have the right to set rules and to force others to behave accordingly – the right to enforce those rules. Eurozone membership has turned Germany from a superpower into just one of the key players involved in European law making and policy making. If the euro survives this crisis, it will be a completely different currency, implying monetary conditions very different from what the Germans, in particular, had hoped for. Germany is also facing a tough choice – further integration or a perfect monetary order. This question is rather new and painful and the answer will affect us all.

European countries need strict rules and an authority entrusted with the power to set and enforce rules. There should also be a possibility to discipline and punish countries which do not comply with the rules by expelling them from the European monetary union as well as from the European Union itself.

The cluster analysis ascertained that, vis-à-vis the 2020 objectives, European countries break down into two large clusters. The prominent group, which may actually be able to achieve the 2020 goals, consists of Luxembourg, Norway, Germany, Austria, the Netherlands, Finland, Sweden, and Denmark. These economies have undergone structural changes and are successful in confronting the crisis, experiencing economic growth, low inflation, and moderate unemployment. If the existing eurozone breaks up, the core of a new eurozone could consist of Germany, Austria, the Netherlands, and Finland. Other euro area members should continue to implement structural changes and stringent macroeconomic policies outside the new monetary union.

In future research, Ward's method should be enhanced through the application of other clustering methods, such as *Complete Linkage* and *Single Linkage*, in an effort to explore the methodology in greater depth.

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Quo Vadis, Euro?

Streszczenie. *Europa stoi w obliczu poważnych wyzwań. Najtrudniejsze są, co prawda, te gospodarcze, lecz obok nich stoją przed nami nie mniej wymagające wyzwania moralne, społeczne i filozoficzne. Europejscy ekonomiści wciąż zajmują się „leczeniem" kryzysu za pomocą tzw. kredytów pomostowych (ang. monetary bridging), skupiając się na utrzymaniu płynności i kupując czas. Tymczasem nadal czekamy na ściślejszą integrację lub rozpad strefy euro. Artykuł prezentuje alternatywne scenariusze przyszłości tak strefy euro, jak i samej waluty, a tym samym być może całej Europy. Bardziej niż kiedykolwiek w przeszłości można dostrzec, że Europejczycy oczekują recept szerszych, obejmujących liczne sfery naszego życia, odnoszących się do kwestii moralnych, filozoficznych i społecznych, jak choćby do starzenia się ludności kontynentu.*

Słowa kluczowe: *wzrost gospodarczy, strategia Europa 2020, strefa euro, analiza skupień, metoda Warda*