WHAT DETERMINES THE FISCAL CONSOLIDATION PROCESS: THE ANALYSIS WITHIN EUROPEAN MEMBER COUNTRIES

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Abstract: *The fiscal consolidation process is determined by many factors of economic, monetary, political or fiscal environment. The paper is focused on analysis and assessment of selected determinants on the attributes of fiscal consolidation process within European Union member countries. The purpose of this paper is to study relations between macroeconomic, fiscal, political and other determinants using methods of quantitative economy. Analysis is focused on the duration, length and intensity of fiscal consolidation episodes and the quantification of their impact polarity. The paper identifies statistically significant determinants that can affect the success of a fiscal consolidation. The research results of performed panel regression analysis within time period 1995-2016 within EU member countries pointed out that macroeconomic and fiscal conditions are significant for the whole consolidation process and to all its attributes. The paper was developed within the project VEGA 1/0967/15.*

Keywords: *Duration, Length and Intensity of Consolidation, Fiscal Consolidation Episodes, Determinants of Consolidation, Panel Regression Model, EU Member Countries.*

JEL Classification: *H30, H81, H87.*

Introduction

The development of public finance from the historical point of view illustrates that the fiscal consolidation has been a significant part of fiscal evolution since the 1980s (0. Over the past decades the most EU countries have performed several fiscal episodes with the aim to stabilize fiscal development, to support the economic development and to contribute to long-term sustainability of public finance (Yang, Fidrmuc and Gosh, 2015; Mirdala, 2013). The fiscal process includes some attributes (start, duration, length and the intensity of consolidation), that form the shape of consolidation and affect the overall success of consolidation process (European Commission, 2007; Guichard et al., 2007).

As Molnar (2012) state, the first important step of consolidation is the "start of consolidation" and the question what is its trigger. The start of consolidation may be considered as the year in which the effects of consolidation measures, implemented in the current or in the immediately preceding year, have taken place. The determinants of start of consolidation are the object of many researchers (e.g. Molnar, 2012; Arin, Müller and Reich, 2013; Larch and Turrini, 2001; etc.) that stated that the initial fiscal conditions and macroeconomic conditions of the country could significantly determine the start of consolidation process.

The next question, which is connected with the dynamics of the current economy, is the timing and the duration of fiscal episodes. There are many disagreements within the stated question (Agnello, Castro and Sousa, 2013). While within the Eurozone countries do emphasis on the relatively short-term fiscal periods (with the assumption of sustainable economic growth and credible fiscal policy), in other countries (for example the US) a long-term fiscal consolidation is preferred (Agnello, Castro and Sousa, 2013). As research e.g. Molnar (2012) or Hernández de Cos and Moral-Benito (2012) stated, the duration of consolidation is affected by many economic, fiscal or other determinants that have a positive as well as a negative effect.

The third important question and attribute of consolidation process is the size of the consolidation, usually empirically measured by changes in the cyclically adjusted primary balance (Guichard et al., 2007; Gnangnon, 2011). The size of consolidation represents a factor that together with the type of consolidation affects its duration. As Agnello, Castro and Sousa (2013) state, from the size of the fiscal consolidation point of view, severe fiscal adjustments are generally signalling the commitment of governments to achieve long-term sustainability of public debt. Within the determining factors can be mainly fiscal conditions of the country concluded (OECD, 2007; Guichard et al., 2007).

Another attribute that is together with the duration and the size of consolidation often used to characterise the type of consolidation episodes is the intensity of consolidation (Molnar, 2012). As Guichard et al. (2007) states, despite the fact that long consolidations are characterized by a larger size, paradoxically, they tend to exhibit lower intensity. Intensive fiscal consolidation is likely to be difficult to maintain over time, due to either so-called "fatigue" or the easy-to-implement measures that are being implemented during fiscal consolidation. The intensity of consolidation depends on many factors, such as initial fiscal and monetary conditions or economic factors (OECD, 2007; Molnar, 2012).

Performed fiscal consolidation episodes will be marked as successful if the country, that is undergoing a consolidation process, has achieved pre-defined goals in the form of debt stabilization and economic performance (Alesina and Ardagna, 2012; Afonso and Jalles, 2011). Individual attributes are positively or negatively determined by many factors (e.g. Yang, Fidrmuc and Gosh, 2015; Agnello, Castro and Sousa, 2013; etc.), that can condition the success of consolidation. Therefore is the identification of individual attributes and their determinants as well as the assessment of their impact an actual and necessary.

1 Objective and research methodology

The main objective of the paper is, based on the theoretical knowledge and empirical research results about the consolidation duration, size, intensity and their determinants, to empirically assess the impact of selected consolidation determinants in European member countries during the 1995-2015 period using methods of quantitative economy.

In line with the main objective is the paper divided into two main parts. The first part of the paper is focused on the synthesis of selected theoretical knowledge of individual consolidation attributes (duration, length and intensity) and on the clarification of variety of determinants and their expected effects on attributes using a systemic review in line with the Evidence-Based Healthcare methodology (EBHC methodology). The second part of the paper is focused on the analysis and evaluation of the statistically significant determinants of individual attributes and their impact using a panel regression model for the EU member states during the period 1995-2015.

From the methodological point of view is the research carried out in few steps: (i) collection of secondary scientific sources, their processing and systemisation (full-text scientific databases), (ii) creation of research review using and the summarization of knowledge, (iii) creation of a database from secondary sources (Ameco; Eurostat; ECB statistics and Norwegian Centre for Research Data (NCRD); time span: 1995-2015) and (iv) econometric analysis: model specification, quantification of model's parameters and model verification and (iiv) research assessment and discussion.

The main research method used in the paper is *analytic-synthetic method*. In line with the mentioned methodology, following *general methods* were used: in-depth research, analysis, comparison, induction and synthesis. *Mathematical and statistical methods*, including graphical and numerical data description were used. As a *specific econometric method* was the panel regression model used. The panel regression model was selected based on the character of the model's variables, which are a combination of cross-sectional and time series data of the 28 EU countries.

The econometric model has been designed so that it takes into account the relevant variables for a correct estimation of a causal connection between the endogenous variables $EngV_{i,t}$: "duration of consolidation" $DurC_{i,t}$, "size of consolidation" $SizeC_{i,t}$, "intensity of consolidation" $IntC_{i,t}$ and exogenous macroeconomic ($MACR_{k_{i,t}}$), fiscal ($FISC_{l_{i,t}}$), political ($POL_{j_{i,t}}$) and other determinants ($OTH_{p_{i,t}}$) *(1)*.

$$EngV_{i,t} = \beta_0 + \sum_{k=1}^{m} \beta_k MACR_{k_{i,t}} + \sum_{l=m+1}^{n} \beta_l FISC_{l_{i,t}} + \sum_{j=n+1}^{r} \beta_j POL_{j_{i,t}} + \sum_{p=r+1}^{s} \beta_u OTH_{p_{i,t}} + \varepsilon_{i,t} \qquad (1)$$

During the econometric analysis four types of models were performed (Ordinary Least-Squares Regression Model (OLS), OLS model with dummy variables for countries and years, Fixed Effects Model (FEM) and Random Effects Model (REM)). The selection of the final appropriate regression model was based on statistical significance tests that were applied (F-test of the statistical significance of the individual components, Haussmann test, Panel Lagrange Multiplier test (PLM test)). The econometric verification was carried out in the form of the basic Gauss-Markov theorem verification: (i) verifying the existence of correlation between individual panels (Pesaran test) and (ii) verifying the existence of serial correlation for panel models (Breusch-Godfrey/Wooldridge test). Based on the econometric assumption's verification showed feasibility of the model.

2 Selected theoretical aspects of individual attributes of consolidation

Dynamics of the current economy rises many questions about the proper timing and the length of fiscal adjustments that lead to cover the gaps in public finance. The wide spectrum of policies that the individual governments apply with the aim to solve existing fiscal deficits are usually in disagreements within this question. Empirical studies such as Agnello, Castro and Sousa (2013) have proven that the favourable length of the consolidation episode is less than six years. The research of these authors states that within the European countries is this period shorter than within countries outside the Europe. Countries that have introduced consolidation adjustments in more than six consecutive years are more likely to be "stuck in a vicious circle of fiscal consolidations".

The size of fiscal consolidation can be from the theoretical context defined as the cumulative improvement of cyclically adjusted primary balance during the consolidation episode. Guichard et al. (2007), Hernández de Cos and Moral-Benito (2012) define the term "large scale of consolidation" that takes into account the criterion of its size (it is a significantly large reduction in the primary balance during the given period), criterion of its persistence (it is a sufficiently long time period during which the primary balance is constantly improving) or combination of both criteria. The more negative the cyclically adjusted primary balance (CAPB) indicator is, the greater the extent of the fiscal consolidation, as well as the need for a public attention about the consolidation treatment Guichard et al. (2007). In general, larger consolidation episodes take longer, and vice versa.

The intensity of fiscal consolidation can be simplistically characterized as the average annual change of CAPB indicator during the consolidation episode (Guichard et al., 2007; Molnar, 2012). Despite the fact that long consolidations are characterized by a larger range, paradoxically they tend to exhibit lower intensity. The intensive fiscal consolidation is probably difficult to perform within a long time period because of so called "fatique of adjustments" or because of easily implementable measures which are carried out during the fiscal consolidation.

3 Determinants of duration, size and intensity of consolidation

Determinants of fiscal consolidation duration, size and intensity were identified based on systematic research using EBHC methodology (Klugar, 2015). Despite the fact that EBHC methodology is primarily used for medical research, this type of methodology represents a significant and valuable type of systemic review which identifies relevant studies based on pre-selected search parameters and limitations (Klugar, 2015). Therefore the EBHC methodology was applied for this economically based research. The research was performed using a search strategy within several available full-text databases, with several indented conditions (inclusion and exclusion criteria). Resulting researches were screened and assessed using quality criteria with the aim to identify determinants of attributes and to find out their expected effects.

3.1 Theoretical aspects of determinants´ expected effects

Based on the empirical research obtained and evaluated in the review, determinants of the duration, size and intensity of consolidation and their predicted impact were identified. In line with the research evaluated such as Molnar (2012), Lassen (2010), Agnello, Castro and Sousa (2013) or Mulas-Granados (2003) are determinants divided into four main groups: *macroeconomic, fiscal, political and the other factors*.

(1) The first set of variables are macroeconomic determinants ($MACR_{k_{i,t}}$).The macroeconomic factors used in panel regression include: real GDP growth (rGDP;%); output gap (gdpGAP;%); unemployment rate (Unempl;%); investment expenditures (Invest;% GDP); expenditures on personal consumption (S;mld.Eur), private savings, external trade (Openess;%), inflation (Infl;%), government debt interest payments

(Dinterest;% GDP) and short-term and long-term interest rates (STinterest, LTineterest;%)

Among the macroeconomic variables with a significant effect on the duration of consolidation can be included: real GDP growth, output gap and unemployment rate (Auerbach and Gorodnichenko, 2012). The stated determinants have the same effect on the size of consolidation. The stated above economic conditions are relevant determinants of the consolidation intensity only in case of small consolidations (Molnar, 2012). As OECD (2007) state, the duration of consolidation is positively influenced by monetary conditions in the form of inflation and short-term and long-term interest rate and by the external trade (openness) of the economy. A high initial interest rates lead to a larger consolidation (OECD, 2007; Guichard et al., 2007). On the other hand Molnar (2012) state, that the monetary conditions in the form of inflation and interest rates increase the size of consolidation only in the case of very long consolidation episodes. According to the stated author these monetary factors do positively influence also the intensity of consolidation. Authors Hernández de Cos and Moral-Benito (2012) state that the level of private savings and government debt interest payments can negatively influence the duration of consolidation. According to OECD (2007), if the economy performance is weak, it is difficult to achieve a high consolidation intensity.

(2) The second set of variables represents fiscal determinants ($FISC_{i,t}$). Certain critical values of the factors in the fiscal variable group may be an incentive for a fiscal consolidation process, therefore are used in panel regression. This usually includes: public debt to GDP ratio (Debt;%GDP), deficit to GDP (Def;%GDP), cyclically adjusted balance (CAPB,%), share of expenditures on GDP (Exp;% of GDP) and share of revenues on GDP (Rev;%GDP).

The results of European Commission (2007) pointed out, that the worse the public finance situation is the higher the probability of lasting fiscal correction implementation. Hernandez de Cos and Moral-Benito (2012) and Molnar (2012) confirmed a negative effect of the share of deficit on GDP on the consolidation length. Exact size of necessary fiscal adjustments depends on individual fiscal situation in individual countries. Daniel et al. (2006) state that the size of consolidation is closely linked to initial budgetary conditions of the country, particular the primary balance indicator. The higher the value of the initial primary balance, the larger the size of consolidation episode. The indicators: share of expenditures and revenues on GDP indicate the consolidation´s composition. The research OECD (2007) shows that the size of fiscal adjustments increase if the consolidation is performed using the expenditure-based method, specifically using primary spending cuts. Molnar (2012) has confirmed that the intensity of long and big consolidation episodes probably depend on the value of deficit from previous period. According to OECD (2007) there is a direct correlation between the level of the initial deficit and the intensity of fiscal consolidation.

*(3) The third group of fiscal consolidation factors are the political factors ($POL_{i,t}$).*Among the political factors are considered: the electoral period (ElY, a dummy variable - the year when elections took place, value of 1, the year in which elections were held, else value of 0), the government orientation, the political rules in the EU

countries at different time periods, fiscal rules, or the Herfindahl index - the index of the political parties concentration in the Parliament (HI).

Among the group of political factors are several determinants with a positive effect on the consolidation duration. As Guichard et al. (2007) and Larch and Turrini (2011) state, a positive impact on the consolidation process duration can have a parliamentary election period and budgetary rules. Besides the stated variables, a positive effect on duration as well as on the size of consolidation is according to Molnar (2012) recorded for political rules of EU and other fiscal rules. Budgetary rules can have a positive impact on the intensity, but on the other hand a negative impact was recorded for the orientation of the ruling party in politics. Due to the unavailability of certain data, were in panel regression only two factors used: electoral period and Herfindahl index.

(4) Other factors ($OTH_{p_{i,t}}$) that do not belong to any of the groups defined above are included in the last set of factors. Their effect on the success of fiscal consolidation can be significant. Other factors usually include: Crisis (as a dummy variable - the year with a crisis active marked 1, year without it, 0) and consolidation duration.

The length of consolidation can be affected by the presence of a crisis or the emergence of the crisis during the consolidation period. The size of consolidation is the only attribute on which the duration of consolidation (expressed in years of duration) has a positive effect. A negative effect on the consolidation size is recorded for determinants: exchange rate and political orientation of the government (Hernández de Cos and Moral-Benito, 2012).

3.2 Empirical analysis of determinants of duration, size and intensity of consolidation and discussion

The analysis of statistically significant determinants of the individual attributes was carried out using a panel regression on EU member countries data ranging 1995-2016. The basic equation was defined in the form (1). In line with the empirical research obtained and evaluated in the review (such as Molnar, 2012; Lassen, 2010; Agnello, Castro and Sousa, 2013; Mulas-Granados, 2003; etc.) assumptions A_1 – A_3 about the expected effects of selected determinants were formulated: *A positive effect on the "duration of consolidation, size of consolidation and intensity of consolidation" is expected for the envisaged macroeconomic, fiscal, political and other determinants, with the exception of the variables*: *private savings, government debt interest payments and deficit.*

3.2.1 Fiscal consolidation duration – analysis of its determinants

The significance of individual determinants was addressed using the assumption of the relationship A_1. Within the performed models was the endogenous variable "duration of consolidation" measured in two forms: *1) binary variable (long=1, short or none=0)* according to criterion: the improvement of cyclically adjusted primary balance (CAPB) by above 2%, *2) numeric variable* measured by *the number of consolidation years* of fiscal episodes (Mihóková, Harčariková and Martinková, 2017).

Based on the tests described within the methodology, as an appropriate model was the PLM with the fixed effect for time selected. The results for both proposed models 1) and 2) with the statistically significant variables are shown in Tab. 1.

Tab. 1: Significant determinants of consolidation duration

Variables	Estimates	Signif.	Variables	Estimates	Signif.
1) duration (as binary variable)			**2) duration (as numeric variable)**		
Macroeconomic variables					
gdpGAP	0.0089534	(0.013769)*	rGDP	-2.259854	(0.0302066)*
Unemp	0.0135935	(0.009114)**	gdpGAP	0.053005	(0.0039419)**
Invest	0.0228794	(1.286e-05)***	LTinterest	0.128575	(2.277e-05)***
Dinterest	0.0954021	(2.2e-16)***	Dinterest	-0.205811	(0.0004711)***
Fiscal variables					
Exp	-0.0685888	(2.2e-16)***	CAPB	0.322885	(2.2e-16)***
Rev	0.0896244	(2.2e-16)***			
Political variables					
HI	1.1180405	(0.009299)**			
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					

Source: Author's own elaboration

1) The results for model 1) showed that the significant determinants are macroeconomic variables: output gap , investments, government debt interest payments and unemployment rate with the positive effect. . From the fiscal group of variables are within the significant determinants the share of expenditures (-) and revenues on GDP (+). The significant variable is also political variable: Herfindahl index.

2) The research results pointed out that the "duration of consolidation" expressed as the number of years has been negatively influenced by macroeconomic variables: GDP growth and government debt interest payments and positively influenced by output gap as well as long-term interest rate. From the fiscal group of variables was identified as significant factor with a positive effect only one variable: cyclically adjusted primary balance.

Based on the results can be stated that the formulated assumption A_1 was not confirmed. Based on the significance of both models is the interpretation of results focused on the model 1). Among the other significant macroeconomic variables are included four variables. The results are in line with the results of foreign research: as Molnar (2012) states, the economic conditions are relevant for consolidation duration. The results for output gap variable suggest that increasing gap has led to a longer duration of consolidation. As the results showed, the probability for duration increase is positively influenced by the unemployment rate, what is in line with the research Larch and Turrini (2011) or Mulas-Granados (2003) according to which the certain level of unemployment represents an impulse for longer consolidation. The effect of the government debt interest payments for the model 1) is inconsistent with the research Hernández de Cos and Moral-Benito (2012) which state, the level of government debt interest payments can negatively influence the duration of consolidation. Among the fiscal variables, the indicator Exp had a negative effect and Rev has a positive effect on duration of consolidation. As the model results show, the increasing expenditures have led to shorter consolidation. On the other hand, the results support also the success of a revenue-based consolidation OECD (2012) or Wöhlbier et al. (2014).

3.2.2 Fiscal consolidation size - analysis of its determinants

Within the panel regression analysis significant determinants of the "size of consolidation" attribute were analysed and an assumption A_2 was formulated. Within the performed models was the endogenous variable "size of consolidation" measured in two forms: *1) as cumulative improvement of cyclically adjusted primary balance* (CAPB) within overall fiscal episode (Guichard et al., 2007) and *2) as the difference between the* $CAPB_{t+i}$ *and* $CAPB_{t-1}$ (*t* represents the start of consolidation episodes and *i* represents the length of fiscal episodes expressed in years) (Guichard et al., 2007; Gnangnon, 2011).

Based on performed tests, an appropriate model was the OLS model with dummy variables for countries. The results of the panel regression for both proposed models 1) and 2) with the statistically significant variables are shown in Tab. 2.

1) Within the significant determinants of the "fiscal consolidation size" can be included the macroeconomic variables: inflation and the long-term interest rate with a negative effect and the government debt interest payments with a positive effect. Within the fiscal variables were several determinants identified as significant: the share of expenditures (-) and revenues on GDP (+). From the group of political and other factors there were no significant determinants of the consolidation size significant.

2) Within the second model results showed that from the macroeconomic group of variables were factors that negatively influenced the "size of consolidation" variables: GDP growth, unemployment rate and government debt interest payments. Variables with the positive effects are output gap, inflation and long-term interest rate. Among the significant fiscal determinants with a positive effects are CAPB, deficit and the share of expenditure on GDP. The political variable Herfindahl index is the variable with a negative impact.

Tab. 2: Significant determinants of the fiscal consolidation size

Variables	Estimates	Signif.	Variables	Estimates	Signif.
1) size (as cumulative value)			**2) size (as difference value)**		
Macroeconomic variables					
Infl	-0.01643	(0.01702)*	rGDP	-3.29286	(3.31e-05)***
LTinterest	-0.097091	(0.01956)*	gdpGAP	0.02708	(0.076045).
Dinterest	0.153503	(0.01793)*	Unempl	-0.04797	(0.024504)*
			Infl	0.01329	(0.005234)**
			LTinterest	0.11083	(7.85e-05)***
			Dinterest	-0.90329	(0.000407)***
Fiscal variables					
Exp	-0.068402	(0.02702)*	CAPB	0.83865	(0.000908)***
Rev	0.121981	(0.00743)**	Exp	0.98825	(0.000206)***
			Rev	-1.01462	(0.000152)***
			Def	0.16192	(0.001612)**
Political variables					
			HI	-2.65098	(0.130464).
Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1					

Source: Author’s own elaboration

Model results pointed out, that the formulated assumption A_2 was not confirmed. The model results show that as a better interpretation of the CAPB was the measure based on difference and therefore is this approach used in the analysis in model 2). The greatest effect have had the selected macroeconomic and fiscal variables. The increase in GDP has a negative effect, what is in line with previous results in the consolidation duration model. As Auerbach and Gorodnichenko (2012) state during an economic expansion is the probability of the duration as well as the size of consolidation lower. On the other hand, it is in line with the results of output gap variable, according to which the increasing gap leads to a consolidation of a greater size. The impact of government debt interest payments is statistically significant and negative. As Hernández de Cos and Moral-Benito (2012) state, the government debt interest payments negatively influence the consolidation process. The impact of long-term interest rates is in line with the OECD (2007) which state that the high initial interest rates lead to a larger size of consolidation. The most significant fiscal variable is the primary balance and composition of consolidation expressed as the share of expenditure and revenue on GDP. As European Commission (2007) pointed out, that the worse the public finance situation is, the higher the probability of long lasting fiscal correction implementation. The effects of fiscal components illustrate that the composition of consolidation is a significant determinant of the consolidation size. The results support the research such as Nickel, Rother and Zimmermann (2010), who state that reduction in costs (particularly with respect to government consumption and transfers), indicate a greater probability of sustainable fiscal consolidation and improved economic performance.

3.2.3 Fiscal consolidation intensity - analysis of its determinants

The intensity of consolidation is closely connected to size therefore the identification of significant determinants have been performed in two cases. The intensity of consolidation was calculated as the size of consolidation divided by the years of consolidation. The examined endogenous variables has been expressed in two forms: *1) intensity measured as the cumulative improvement of CAPB* within the overall fiscal episode **Chyba! Nenalezen zdroj odkazů.** and *2) intensity measured as the difference between the $CAPB_{t+i}$ and $CAPB_{t-1}$* (t represents the start of consolidation episodes and i represents the length of fiscal episodes expressed in years) **Chyba! Nenalezen zdroj odkazů.Chyba! Nenalezen zdroj odkazů.**. A model assumption A_3 has been assumed.

The assumption was verified through four types of models and the selection of the final appropriate was based on statistical significance tests. An appropriate model was the OLS model with dummy for countries. The results of the panel regression for both models 1) and 2) with the statistically significant variables are shown in Tab. 3.

Tab. 3: Significant determinants of the intensity of consolidation

Variables	Estimates	Signif.	Variables	Estimates	Signif.
1) intensity (as cumulative value)			**2) intensity (as difference value)**		
Macroeconomic variables					
rGDP	0.943893	(0.06002).	rGDP	-1.94386	(8.01e-05)***
Infl	-0.005827	(0.05322).	Unempl	-0.02721	(0.026736)*
LTinterest	-0.043907	(0.01043)*	Infl	0.01069	(0.002795)**
Dinterest	0.070669	(0.00980)**	LTinterest	0.07496	(3.32e-05)***
			Dinterest	-0.46573	(0.002929)**
Fiscal variables					
Exp	-0.023715	(0.07091).	CAPB	0.42178	(0.006261)**
Rev	0.055441	(0.00338)**	Def	0.10037	(0.001457)**
			Exp	0.52568	(0.001216)**

			Rev	-0.53950	(0.000939)***
Political variables					
HI	-1.985743	(0.07353).	HI	-1.61400	(0.138080).
Other variables					
			Crisis	-0.09167	(0.312806)
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					

Source: Author's own elaboration

1) As significant determinants was identified macroeconomic variables that positively influenced the intensity of consolidation: GDP growth and government debt interest payments and variables that negatively influenced intensity: inflation and long-term interest rate. Within the other significant determinants can be included the fiscal variables: the share of expenditures (-) and revenues on GDP (+) as well as political variable: Herfindahl index (-).

2) Within the second model among significant determinants are included macroeconomic variables: GDP growth, output gap and government debt interest payments (negative effect) and variables: inflation and long-term interest rates (positive effect). From the group of fiscal variables are significant: CAPB, deficit and the share of expenditures and revenues on GDP. Herfindahl index is significant political variables similar as in previous models. The special determinant is the other variable: crisis that has the negative impact on the intensity.

As the model results suggest, the formulated assumption A_3 was not confirmed. According to significance of the model, the more appropriate one is the model 2). Negative effect is in line with the research Auerbach and Gorodnichenko (2012). Authors state that during an economic expansion the intensity of consolidation is lower. The impact of unemployment rate (the negative impact) on consolidation intensity is relevant only for the case of small consolidations (Molnár, 2012). The results show that the increasing unemployment rate decreases the consolidation intensity. As Hernández de Cos and Moral-Benito (2012) state, the government debt interest payments negatively influence the consolidation process. Among the fiscal variables with a positive effect on consolidation intensity are included CAPB and deficit. It is in line with the OECD research (2007) that have identified a direct correlation between the level of the initial deficit and the intensity of fiscal consolidation. The final, positive effect of expenditure suggests that the expenditure based consolidation leads to intensified consolidation that can support the probability of consolidation success (Nickel, Rother and Zimmermann, 2010).

Conclusion

The main objective of the paper was to empirically assess the impact of selected determinants on duration, size and intensity of fiscal consolidation in EU member countries. The purpose of the theoretical, as well as, empirical part of the research can be considered as fulfilled. The panel regression analysis (in the form of PLM with the fixed effect for time for the duration and OLS model with a dummy variable for countries for the size and intensity) verified formulated assumptions and quantified the polarity of determinants´ expected impact. Results suggest a similar effect of selected variables for consolidation size and intensity (the positive effect of CAPB, and the share of Exp on GDP and the negative effect of government debt interest payment, Herfindahl index and the share of Rev on GDP). The mentioned variables (except CAPB) have an opposite effect in case of consolidation duration. The results confirmed the importance of initial macroeconomic and fiscal conditions. Based on the results can be assumed that the resulting (unexplained) variability of the investigated variables can be explained by random component. In addition, it needs to be noted that the final results of the individual analyses might be affected by several process-related factors such as problems with biased variables.

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