VERSLAS: TEORIJA IR PRAKTIKA / BUSINESS: THEORY AND PRACTICE
ISSN 1648-0627 / eISSN 1822-4202
http://btp.press.vgtu.lt
2017 18: 14–24
https://doi.org/10.3846/btp.2017.002

SOVEREIGN DEBT AND CORPORATE CAPITAL STRUCTURE: THE EVIDENCE FROM SELECTED EUROPEAN COUNTRIES DURING THE GLOBAL FINANCIAL AND ECONOMIC CRISIS

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Received 9 September 2015; accepted 19 December 2016

Abstract. The recent Global financial crisis and the following European debt crisis show the significance of country financial stability and its impact on the private sector. Moreover, the sovereign debt as an essential element of government macroeconomic policy influences the financial performances of the companies and their future development and growth. The capital structure and financing decisions represent one of the most significant parts of company's financial policy and its key to financial strength. There are a lot of external factors influencing the capital structure; however, due to the European debt crisis the aim of this study is to indicate the influence of sovereign debt on capital structure of the private held companies in different European countries. This study examines the evidence from European developed countries and emerging markets for the period 2005–2012, in order to compare the level of its impact on the capital structure according to the countries' specifics. We find that after Global Financial Crisis the sovereign debt has tendency to increase in all investigated countries. Greece and Italy have the highest level of debt and it exceeds their Gross Domestic Product (GDP). In addition to that, the Czech Republic has the lowest level of sovereign debt to GDP, but at the same time the corporate capital structure exceeds 100%. The sovereign debt levels are strongly and statistically significantly correlated with each other, however, Hungarian debt has weaker relation with other countries. The findings also show the integration and interdependence of European countries. Moreover, Hungarian, Czech and German private sectors are the most depended on the level of sovereign debt.

Keywords: sovereign debt, capital structure, European debt crisis, short-term debt, long-term debt.

JEL Classification: G32, H63.

Introduction

In the past few years the sovereign credit risk has increased both in advanced and emerging markets due to higher deficits and debt levels and weaker economic growth. The interaction between public and corporate finance has become more apparent and significant, notably after the Global Financial Crisis and debt crisis in Europe. The presence of effective government debt market encourages development of efficient financial markets, which are getting more and more interconnected within the process of globalization (Pietrzak et al. 2017, Peker et al. 2014, Kulišauskas and Galinienė 2015, Meluzín and Zinecker 2016, Balcerzak and Pietrzak 2016, Fałdziński et al. 2016), and are essential for ensuring a stable economic growth (Das et al. 2010). Moreover, efficient financial markets provide long-term and short-term external financing for companies.

In this paper we investigate the relation between sovereign debt and corporate capital structure across different countries, which represent developed and emerging economies of the European Union (EU). According to the International Monetary Fund classification Hungary, Poland and downgraded Greece have emerging economies; and the Czech Republic, Slovakia, Germany, France and Italy represent developed countries. Provided selection of certain countries enables us to have comparison analysis from the different angles. For instance, the Czech

To link to this article: https://doi.org/10.3846/btp.2017.002

Republic, Slovakia, Hungary and Poland are the members of the Vysegrad group; the economies of Italy and Greece were badly hit by the Global Financial Crisis; France and Germany represent advanced economies.

There are less financial constrains in the developed countries both on macro level as debt management and micro level as corporate financing choice. However, the sharp increase of sovereign debt level in many economies since 2008 has changed the situation. The problems on the government bond market, for example, a fall in bond prices, can lead to liquidity problems or even solvency problems, and in turn the rise in liquidity or solvency risks leads to higher level of refinancing risk. Thus the financial instability of a country results in the fall of the financial markets, which influences the financial stability of a private sector.

During last years the interest to sovereign debt and probability of default has raised among researchers. In addition to that, nowadays the government debt and increased sovereign risk are the matter of argument in all spheres both economical and political.

The paper is organized as follows. The second part represents the theoretical background according sovereign debt, sovereign risk and government probability of default. The third part deals with research design as the methodology and variables selection. The fourth part represents the empirical results of the analysis. Finally, the last section summarizes and provides concluding remarks.

1. Theoretical background

1.1. Sovereign debt in a nutshell

In a general way debt is amount of money that one party borrows from another. In economic terms debt is amount of money borrowed by one party from another under certain arrangements, and debt is considered to be loans, bonds or commercial papers. The debt can be classified as corporate and sovereign. According to Panizza et al. (2009) the main difference between corporate and sovereign debt is the lack of a straightforward legal mechanism to enforce repayment of the sovereigns. The legal penalties in the event of default for sovereigns are more limited than for companies. However, in spite of shortage of direct power to enforce repayment, the default will automatically limit access to a credit market as significant source of financing.

As a rule government debt is associated with government securities as bonds, which sovereign issues to raise funds and cover the budget deficit. The government securities are highly liquid and low-risk, for this reason their rates are used to indicate the benchmark in capital cost estimation. The sovereigns have advantages in compare with other borrowers: the ability to raise taxes, set laws, control supply of money, which in turn makes them more creditworthy and thus decrease risks (Standard & Poor's 2014). The government debt is a source of external financing that a government uses to cover exceeded expenditures.

Based on the literature review conducted by Panizza et al. (2009) sovereigns issue debt, in order to smooth consumption by transferring income from more prosperous countries to worse. Levy Yeyati (2009) finds that private lending to sovereigns is procyclical, at the same time official lending is countercyclical, which contradicts with statement that countries use foreign debt to smooth income shocks.

A sovereign debt is widely traded on the fixed-income securities market, providing "vital benchmark interest rates for most types of privately issued securities at the levels of both theory and practice" (Scott et al. 2008). A supply of interest-bearing sovereign debt facilitates the trading and valuation of all financial instruments that provide liquidity to capital assets.

Sovereign debt increases the risk of higher future corporate taxes or expropriation of private investments (Aguiar et al. 2014). At the same time some studies show that sovereign debt can improve corporate access to a foreign credit market. For example, Dittmar and Yuan (2008) argue that sovereign bonds cause the sizable benefits for the development of corporate bond markets in emerging economies. Moreover, sovereign debt represented by government bonds usually serve as collateral in repo markets, for this reason banks keep them as an access to public liquidity. On macro level a high sovereign debt leads to higher interest rates, higher labor taxes and increase in households' savings. However, the presence of a well-functioning government debt market supports the development of efficient financial markets. Moreover, systematic and strong financial market is essential for ensuring stable economic growth (Udaibir et al. 2010).

The recent financial crisis has had a huge impact on the economy, the economic policy and the public finances of Euro area countries as reported e.g. by Miklaszewicz (2016). During period 2005–2012 Greece had the highest level debt (as percentage to GDP). Italy also overreached 100% of debt to GDP, i.e. total amount of sovereign debt is larger than GDP of a country. France, Germany and Hungary also exceed the limit (60% set by the treaty of Maastricht); however keep the level of debt around 75%. Poland, Slovakia and the Czech Republic satisfy the required debt criteria keeping sovereign debt ratio less than 50%.

Since government debt exceeds the appropriate level, there are a lot of debates regarding consequences of raising sovereign debt. As it was mentioned before government debt is associated with a tax raise. At high debt levels, the expected future tax increase might reduce the possible positive effects of government debt, decreasing investment and consumption resulting in less employment and lower output growth (Arteta and Hale 2008). Earlier Kumar and Woo (2010) find an inverse relation between debt and subsequent

growth in advanced and emerging economies. Later Afonso and Jalles (2013) find the negative effect of government debt on growth.

Theoretically, in terms of closed economy, a higher level of debt will absorb share of national wealth, then increase interest rates and cause the private capital decrease. And the consequences reduce the level of output as new capital is more productive than old capital; and reduced rate of capital accumulation leads to lower economic growth. On the other hand, in the open economy, international financial markets may moderate such effects, if investors stay confident in country's ability to repay. However, larger share of foreign debt leads to lower domestic income reduced by interest paid to foreign that in turn increase the gap between GDP and GNP. To a great extent the higher level of debt might reduce the size and effectiveness of future fiscal response to the adverse shocks (Cecchetti et al. 2010).

1.2. Government debt and corporate performance

By the same token, researchers investigate the influence of sovereign debt not only on macroeconomic performance, but also on corporate characteristics. There can be direct and indirect impact of sovereign debt level on private sector. According to previous studies the fiscal deficit has positive impact on the interest rates (Gale and Orzag 2003). Therefore the companies' choice of financing source is based on the cost of capital, where interest rate plays significant role in its estimation; consequently corporate capital structure relies on interest rates.

In addition, Dailami (2010) argues that "investors' perceptions of sovereign debt problems translate into higher cost of capital for corporate issues, with the magnitude of such costs increasing at times when sovereign bonds trade at spreads exceeding a threshold of 1000 bps". Also Ağca and Celasun (2012) find the relation between external debt of a public sector and corporate borrowing costs. They argue that companies face significantly higher borrowing costs with higher level of sovereign debt; moreover, the relation is stronger for countries with weak creditor risks and episodes of sovereign defaults.

Moreover, sovereign debt influences the availability of financing sources. Arteta and Hale (2008) find that sovereign debt crisis and its aftermath influence the foreign credit availability to private sector. They argue that there is 20% decline of foreign credit to emerging market private companies during debt renegotiation. Along with domestic private credit reduction sovereign defaults also increase the risk of a banking crisis (Borensztein et al. 2007, Sandleris 2008). Dick-Nielsen et al. (2012) and their findings show that sovereign debt crisis increase corporate bond spreads. Additionally Corsetti et al. (2014) also find that higher risk premium on government debt leads to hire corporate credit spreads.

2. Methodology and research design

The companies-level data are obtained from the AMADEUS database contained the financial information on private companies in Europe. In this study we use financial data regarding to capital structure from the manufacturing companies for the period 2006–2012. The companies from selected countries were chosen randomly. The sample consists of 1500 firm-year observations for each country.

The evidence is based on different countries with developed and emerging economies. The Czech Republic, Slovakia, Hungary, Poland and Greece represent emerging markets in EU; and Germany, France and Italy stand for developed countries. These countries are chosen in order to compare the relation between sovereign debt and corporate capital structure in developed and emerging economies. In addition, Italy and Greece suffer from the Global Financial Crisis in more extent, where Greece was reclassified to emerging markets. Furthermore, Hungary, Poland, the Czech Republic and Slovakia represent so called Vysegrad group, and Germany and France are the founders of European Union. The sovereign debt data for countries was collected from the European Commission database. In this paper the government external debt as a percentage to GDP (GD) is used as a proxy for sovereign debt.

The capital structure can be measured in different ways. First classification is considered from the market point of view: whether it is book or market valued leverage. Some authors prefer book value of capital, in order to exclude the influence of external factors that a company cannot adjust. Other authors argue that market leverage better reflects the agency problems. However, there are studies that use both types of leverage (Korajczyk and Levy 2003, Frank and Goyal 2009, Cook and Tang 2010, Campello and Giambona 2010, Dincergok and Yalciner 2011). Another fundamental and widely used classification in capital structure proxies is debt structure. Along with total liabilities the short-term and long-term debt taking into consideration as the measures of capital structure (Michaelas et al. 1999, Hall et al. 2000, Bhaird and Lucey 2010, Hanousek and Shamshur 2011, Keshtkar 2012). Based on the literature analysis of previous studies on the theme of capital structure, three proxies are chosen as Total leverage (TL), Short-term debt ratio (STD) and long-term debt ratio (LTD), in order to take into consideration structure of debt (Mokhova and Zinecker 2013).

The first step to investigate the relation between sovereign debt and corporate capital structure is to find correlation between selected variables. The relations between sovereign debt, i.e. the debt to GDP ratio, and measures of capital structure are expected to vary across countries and depend on corporate debt structure. Furthermore, the influence of sovereign debt on the capital structure in advanced economies is expected to be negative. The developed

economies borrow more due to decreased interest rates during debt crisis, and their financial stability does not shake to a great extent as distinct from emerging economies; thus the investors' confidence should not decrease.

Drawing a parallel between sovereign debt and corporate debt, sovereign debt as percentage to GDP can be considered as capital structure (total leverage) of a country.

Theoretically the GDP of a country can be associated with total assets of a company; and sovereign debt or corporate debt is the source of external financing that the government or the company uses to cover its expenditures. Therefore, we conduct comparison analysis of the government and corporate capital structure among selected countries for the investigated period of time, in order to see their tendencies and interactions.

3. Empirical findings and discussion

According to the European convergence criteria or so called Maastricht criteria, which members of European Union are required to fulfill, in order to adopt Euro currency and enter the Economic and Monetary Union (EMU), the government debt to GDP ratio must not exceed 60%. This requirement encourages the financial stability of a country and therefore the whole European Union. After Global Financial Crisis the government debt has tendency to increase in all investigated countries. Obviously, Greece and Italy have the highest value above 100%. Moreover, these countries exceeded the required level before the crisis 2007/2008. At the same time, France and Germany also have high ratio, before 2007 the debt was fluctuating around 60% of GDP, and after fell into rise. However, compared to Greece and Italy the increase in sovereign debt in advanced countries is caused by willing to borrow under lower interest rates. The members of Vysegrad group as the Czech Republic, Slovakia, and Poland in spite of the fact that the debt also has increased, they kept up the criteria. Only Hungary has handled with the crisis in a less degree and reached almost 80% in 2011. There is no doubt that tendency to increase has been continued among all selected countries. Decline of sovereign debt in 2012 in Greece is due to its restructuring. Interesting, that Germany and France have much higher level of sovereign debt than the Czech Republic, Slovakia and Poland, but the sovereign credit ratings by S&P or Moody's are much lower for countries from Vysegrad group.

In regard to private sector, the tendency to use debt financing is distinguished from the government sector. A striking instance is the Czech Republic, where government debt has raised from 17% to 45% to GDP continued to be the lowest one in this sample; and corporate debt has even exceeded 100% per total assets putting Czech companies far above average. However, the capital structure, which is inconsistent with basic theory, can be caused not only by abnormal amount of debt, but also by negative equities, which take place in Czech practice quite often. The corporate capital structure of the rest countries varies from 40% to 80%. After Global Financial Crisis in Hungarian, Czech and Italian companies are slightly willing to borrow more. At the same time companies in Germany and France have tendency to use less debt as distinct from government.

Appendix A represents comparison between government and corporate debt levels. Before Global Financial Crisis in Germany and France sovereign debt and corporate debt were at the same level around 60%. After the crisis the government debt started to rise and has reached ca. 80%, where corporate capital structure (CCS) has kept at the same level. In Greece and Italy the situation is almost the same, i.e. the tendency of corporate capital structure has not changed. However, sovereign debt ratio was higher than corporate before the financial crisis: corporate debt makes 50% of total assets and government debt has already exceed 100% of GDP. Interestingly that only in Czech Republic and Slovakia corporate debt level is higher than sovereign. Moreover, despite of the fact the corporate debt level exceeds sovereign, in Slovakia the tendency of CCS repeat the tendency of sovereign debt. In Hungary sovereign debt ratio is higher than corporate with slightly tendency to increase. However, only in Poland after 2008 the relation between corporate and sovereign debt levels has changed: the CCS was higher than sovereign debt level before 2008 and after the financial crisis the government has started to borrow more than private sector in percentage terms.

One of the causes of Global Financial Crisis 2007/2008 was the enormous share of corporate short-term debt, which was used to finance long-term investments that led to lack of liquidity. In all investigated countries except Germany the long-term debt ratio was much lower than short-term debt ratio and corporate long-term debt consist of 10–20% of total assets. At the same time in Germany the debt structure fluctuates within investigated period. The share of long-term debt exceeded short-term debt before 2007; after the crisis German companies also started to rely more on short-term source of external financing, but in 2011 the shares came up to ca. 30% each.

The tendency to finance long-term investments with short-term debt can be explained by the fact that long-term debt is costly thus companies choose the cheapest one. According to the analysis of descriptive statistics of corporate long-term and short-term structure, the short-term debt exceeds the long-term three-fold in all investigated countries except Germany (Appendix B). The short term debt in Slovakia, Greece, Italy and France is around 50% of total assets. Poland and Hungary have lower share of short-term debt – 40%. German companies use less short-term debt (ca. 30%) and Czech companies rely mostly on short-term debt financing (150% on average). At the same

time Czech Republic has lowest share of long-term debt: less than 10%. Moreover, it has declined from 9% in 2006 to 5% in 2011. For example, in Italy the share of long-term debt financing has increased from 16% to 23% of total assets. As was mentioned before Germany keeps long-term debt at the same level as short-term (30%). Other countries finance 10% of their assets by long-term debt.

The budget deficit and sovereign debt have direct interrelation. Theoretically, if government expenditures exceed its revenue, the budget deficit is arisen. Consequently government should find another source of financing, i.e. debt. In all investigated countries the sovereign debt has tendency to increase during the period (Appendix C). However, the budget deficit was very volatile and in 2008 it sharply declined and then started to increase. Only in Hungary the budget deficit had rising tendency.

Table 1 shows the correlation coefficients between sovereign debt levels in the analyzed countries. The sovereign debt strongly positively and significantly related to debt levels in other countries. However, only Hungarian debt has weaker relation with other countries.

In order to investigate relation between corporate capital structure and sovereign debt of chosen countries, the correlation analysis was applied (Table 2). As was mentioned before corporate capital structure is presented by three measures: total leverage (debt ratio), short-term debt ratio and long-term debt ratio. The reason of dividing is to investigate the influence of debt structure on the relation between sovereign debt and corporate capital structure. Only in France, the Czech Republic, Greece and Italy the relation between two variables depends on the corporate debt structure. In Italy sovereign debt has negative influence on short-term debt and positive on total leverage and long-term debt ratio. And at the same time, in other countries long-term debt distinguishes from other two proxies. On another hand, in Germany, Slovakia, Poland and Hungary debt structure does not affect the analyzed relation. The evidence shows that in Germany and France, the sovereign debt has strong negative and significant influence on the total leverage; in France the same impact has short-term debt, but negative and significant influence on the long-term debt. The positive strong and significant relation is found between Sovereign debt and total leverage in the Czech Republic, Slovakia and Hungary. In Italy this relation is also positive but low and not significant. Poland has the weakest and non-significant relation for all measures of corporate capital structure. And the most correlated variables are in France and the Czech Republic, however, with opposite direction of influence.

The findings also show the integration and interdependence of European countries. In Germany, the Czech Republic and Hungary there is a strong influence of sovereign debt of other countries on the corporate capital structure. However, in the case of Hungary the rest countries do not rely on its sovereign debt. For example, the Czech sovereign debt has strong positive significant influence on the Hungarian corporate capital structure, but Hungarian sovereign debt has low and not significant relation with Czech corporate debt. Thus Hungarian, Czech and German private sectors are the most depended on the level of sovereign debt. The countries that suffered from crisis in greater extent have weaker relations between sovereign debt and corporate capital structure: the Greece and Italy comparing within European Union; Poland and Hungary within Vysegrad group.

The achieved results give evidence on the interrelation between public and private sector. Moreover, Hungarian, Czech and German private sectors are the most depended on the level of sovereign debt, and of course the impact of corporate debt structure.

Discussion and conclusions

The recent dramatically increase of sovereign debt and a growing probability of default in many European countries have raised many question according the future of European Union, effectiveness of its system and stability of financial markets in general.

Table 1. Pearson Correlation

Debt to GDP	CR	Germany	Greece	France	Italy	Hungary	Poland	Slovakia
CR	1							
Germany	0.936**	1						
Greece	0.940**	0.939**	1					
France	0.979**	0.955**	0.952**	1				
Italy	0.984**	0.961**	0.928**	0.990**	1			
Hungary	0.801*	0.845**	0.849**	0.877**	0.850**	1		
Poland	0.945**	0.981**	0.976**	0.959**	0.959**	0.852**	1	
Slovakia	0.968**	0.903**	0.874**	0.925**	0.942**	0.646	0.893**	1

Note: ** Correlation is significant at the 0.01 level (2–tailed).

* Correlation is significant at the 0.05 level (2–tailed).

Table 2. Correlation between sovereign debt and corporate capital structure

Debt to GDP	Germany	France	CR	Slovakia	Poland	Hungary	Greece	Italy
Germany TL	**– 0.94****	**–0.83***	**–0.94****	**–0.94****	**–1.0****	–0.77	**–0.94****	**–1.0****
STD	– 0.08	0.20	0.08	–0.37	–0.20	0.31	0.08	–0.20
LTD	– 0.77	–0.83*	–0.77	–0.60	–0.65	–0.94*	–0.77	–0.65
France TL	–0.77	**–0.89***	–0.77	–0.77	–0.71	–0.94**	–0.77	–0.71
STD	–0.77	–0.89*	–0.94**	–0.77	–0.89**	–0.77	–0.94**	–0.88*
LTD	0.77	0.88*	0.94**	0.77	0.88*	0.77	0.94**	0.88*
CR TL	**0.84***	0.63	**0.81***	**0.81***	**0.9***	0.58	**0.81***	**0.89***
STD	**0.89***	0.65	**0.83***	**0.87***	**0.943***	0.60	**0.82***	**0.94***
LT	–0.77	–1.00*	–0.94*	–0.77	–0.83*	–0.94**	–0.94**	–0.82*
Slovakia TL	0.94*	0.71	0.771	0.94**	0.89*	0.77	0.771	0.88*
STD	0.37	–0.08	–0.029	0.37	0.20	0.08	–0.029	0.20
LTD	0.83*	0.94**	0.88*	0.71	0.77	1.00*	0.88*	0.77
Poland TL	–0.634	–0.63	–0.58	–0.75	–0.64	–0.63	–0.58	–0.63
STD	–0.31	–0.48	–0.37	–0.60	–0.43	–0.37	–0.37	–0.42
LTD	–0.60	–0.48	–0.42	–0.71	–0.54	–0.54	–0.42	–0.54
Hungary TL	0.88*	0.94**	1.0**	0.83*	0.94**	0.88*	1.0**	0.94**
STD	0.83*	0.60	0.71	0.94*	0.89*	0.54	0.71	0.88*
LTD	0.77	1.00	0.94	0.77	0.82	0.94*	0.94	0.82
Greece TL	–0.60	–0.37	–0.60	–0.71	–0.77	–0.20	–0.60	–0.77
STD	–0.64	**–0.899***	–0.84*	–0.66	–0.72	–0.81*	–0.84*	–0.72
LTD	0.48	0.60	0.54	0.25	0.37	0.71	0.54	0.37
Italy TL	0.44	0.61	0.70	0.26	0.53	0.53	0.70	0.53
STD	–0.60	–0.82*	–0.77	–0.60	–0.66	–0.77	–0.77	–0.65
LTD	0.77	0.89*	0.94**	0.77	0.89*	0.77	0.94**	0.88*

Sovereign debt provides outstanding liquidity to financial markets all over the world, which consequently influences the ability of private sector to borrow and investors' confidence that in turn leads to capital structure changes.

In this paper we explore the sovereign debt and sovereign risk of selected European countries representing well-developed and emerging markets. In addition, the relation between sovereign debt and corporate capital structure was investigated for the period 2005–2012.

The research is based on the data obtained from the AMADEUS database contained the financial information on private non-financial companies for the period 2005–2012. The sample consists of 1500 firm-year observation for each country. Eight countries represent developed and emerging economies: Germany, France, the Czech Republic, Slovakia, Poland, Hungary, Italy and Greece. In order, to investigate the relation between sovereign debt and corporate capital structure, we apply the comparison and correlation analysis. The sovereign debt is determined as ratio of sovereign debt to GDP. Corporate capital structure is represented by three measures: total leverage, short-term debt ratio and long-term debt ratio.

The findings show that sovereign debt has a strong negative and significant influence on the total leverage of enterprises in Germany and France, and a positive impact in the Czech Republic, Slovakia and Hungary. The strong negative relation with sovereign debt is evident in the case of the short-term debt ratio in France and Greece and long-term debt ratio in Czech Republic. At the same time, a strong positive significant relation has long-term debt in France,

Hungary and Italy, and a positive relation with short-term debt has sovereign debt in Czech Republic.

Summing up, the countries that suffered from the Global Financial Crisis in greater extent have weaker relations between sovereign debt and corporate capital structure: the Greece and Italy comparing within European Union; Poland and Hungary within Vysegrad group. On the other hand the evidence from Germany and France as advanced economies and Czech Republic and Slovakia as more developed in Vysegrad group members show significant influence of sovereign debt on the corporate capital structure. This can be explained by superior fiscal and monetary mechanism, developed financial markets and good correspondence between macro and micro levels.

Furthermore, the sovereign debt, its increase and consequently raising probability of default have significant influence on economical and financial performance of a country and its stability. Higher debt can lead to less liquidity, decrease of foreign and domestic investments, credit crunch, lower GDP growth and etc. Moreover, debt required additional source of financing for debt services thus debt is very costly. However, the sovereign default (decision not to repay) is found to be more expensive due to future negative consequences as loss of trust, weak investors' confidence and even difficulties to access credit markets.

The sovereign debt management including the amount of debt, the maturity of government bonds, the paid interests and etc. influences the financial stability of a country and its future development, moreover the financial markets and banking system, which in turn effects investors' confidence, raises financial constrains or in reverse alleviates them. All of these can cause the changes in the corporate financial decisions regarding source of financing.

Disclosure statement

Authors declare that they have no competing financial, professional, or personal interests from other parties.

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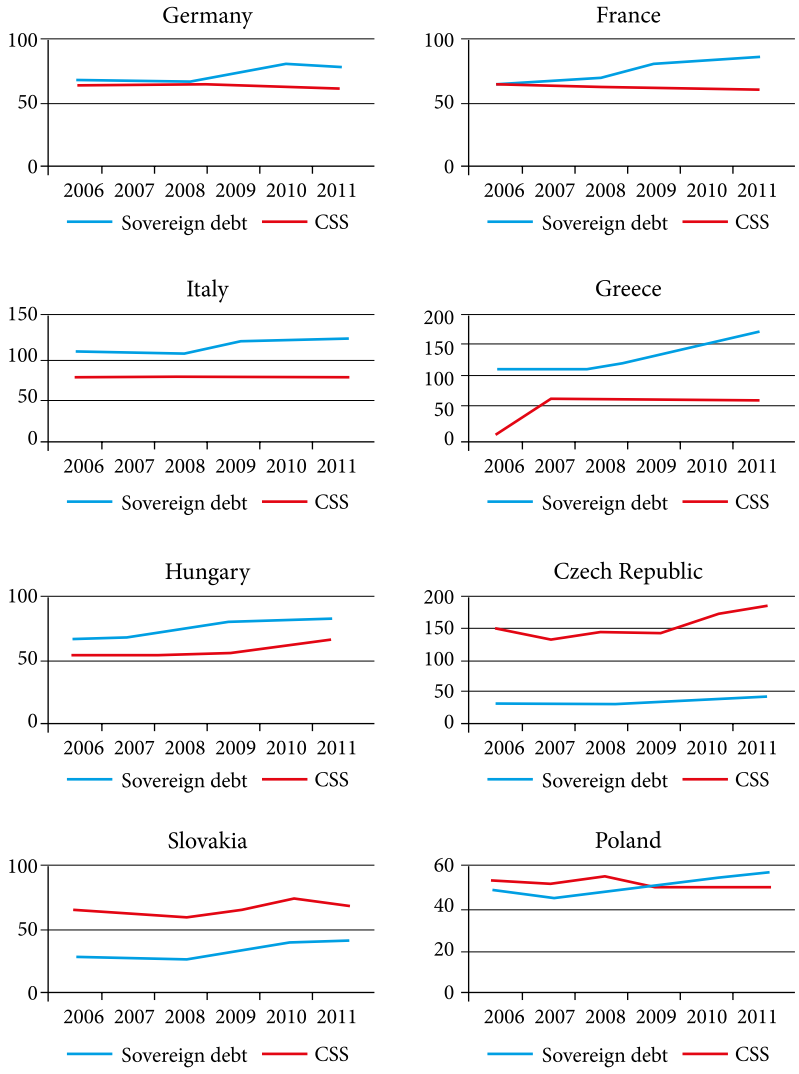
APPENDIX A



The tendency of sovereign debt and CCS among selected countries

APPENDIX B

Descriptive statistics: Corporate short-term debt ratio

Mean (Standard deviation)

	2006	2007	2008	2009	2010	2011
Slovakia	0.53(0.31)	0.51(0.76)	0.464(0.35)	0.474(0.33)	0.538(0.32)	0.494(0.38)
Poland	0.406(0.19)	0.395(0.23)	0.416(0.21)	0.368(0.23)	0.401(0.2)	0.386(0.21)
Hungary	0.428(0.97)	0.408(0.37)	0.404(0.29)	0.409(0.27)	0.43(0.23)	0.492(0.24)
CR	1.391(10.6)	1.24(10.1)	1.359(5.64)	1.361(4.56)	1.651(3.27)	1.81(4.31)
Greece	0.477(0.26)	0.465(0.27)	0.453(0.25)	0.443(0.24)	0.448(0.24)	0.443(0.24)
Italy	0.571(0.24)	0.568(0.25)	0.529(0.24)	0.505(0.25)	0.519(0.26)	0.518(0.27)
Germany	0.294(0.23)	0.32(0.22)	0.343(0.23)	0.342(0.24)	0.337(0.23)	0.317(0.24)
France	0.515(0.22)	0.522(0.23)	0.51(0.24)	0.478(0.23)	0.481(0.23)	0.473(0.22)

Source: Authors' composition.

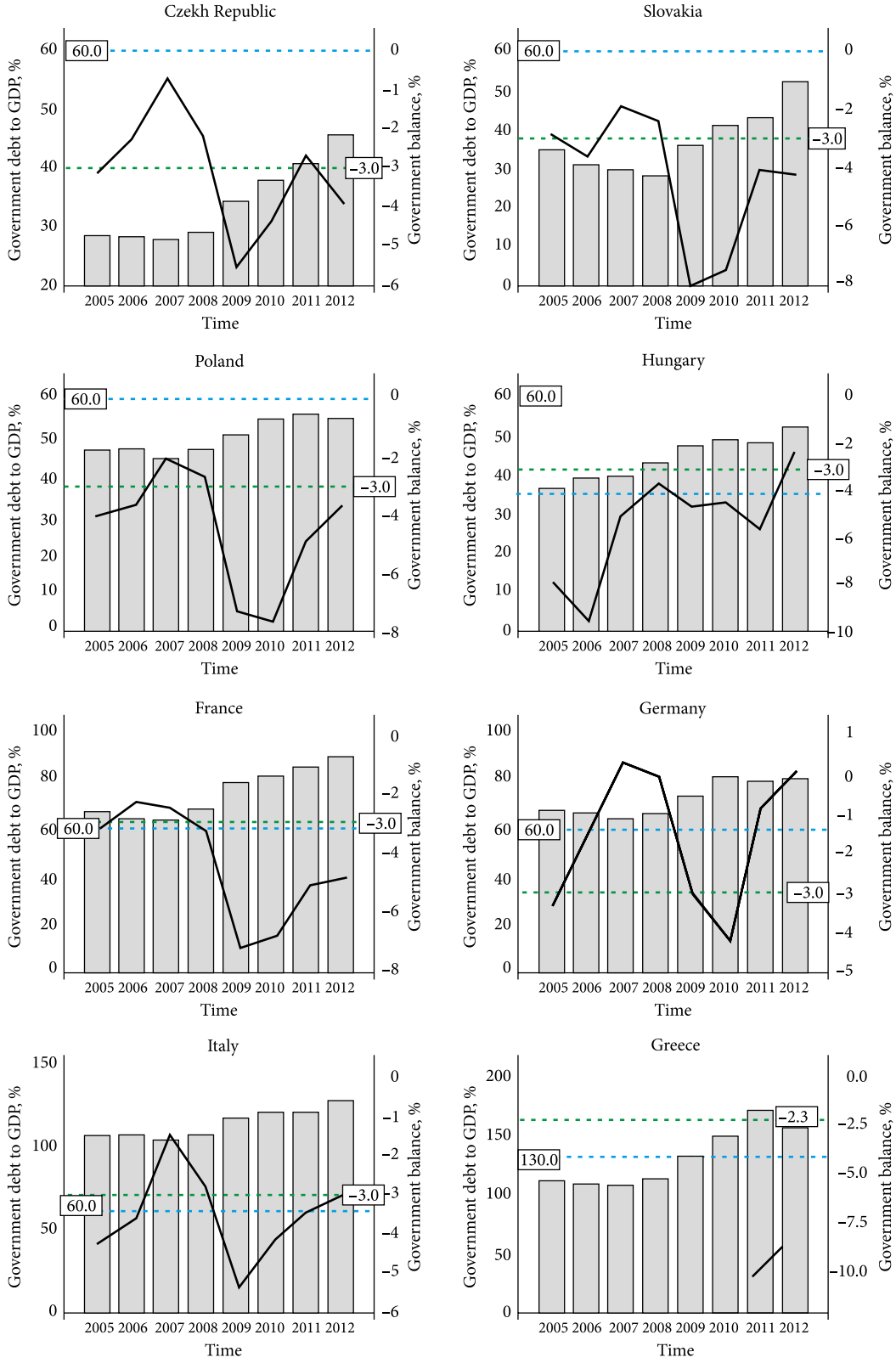
Descriptive statistics: Corporate long-term debt ratio

Mean (Standard deviation)

	2006	2007	2008	2009	2010	2011
Slovakia	0.127(0.96)	0.136(1.11)	0.148(0.5)	0.185(0.22)	0.209(0.18)	0.195(0.16)
Poland	0.12(0.17)	0.119(0.15)	0.133(0.16)	0.124(0.15)	0.1(0.15)	0.115(0.16)
Hungary	0.117(1.03)	0.126(0.8)	0.142(0.64)	0.15(0.52)	0.161(0.32)	0.167(0.27)
CR	0.096(0.11)	0.087(0.1)	0.066(0.12)	0.065(0.12)	0.054(0.2)	0.052(0.26)
Greece	0.11(0.15)	0.136(0.14)	0.144(0.15)	0.15(0.14)	0.146(0.14)	0.141(0.13)
Italy	0.161(1.01)	0.155(0.96)	0.218(0.96)	0.228(1.004)	0.224(0.14)	0.229(0.14)
Germany	0.353(0.22)	0.339(0.2)	0.312(0.21)	0.3(0.23)	0.293(0.26)	0.302(0.24)
France	0.116(0.16)	0.103(0.15)	0.118(0.17)	0.133(0.13)	0.125(0.12)	0.135(0.14)

Source: Authors' composition.

APPENDIX C



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