

"SMEs debt financing in the EU: on the eve of the coronacrisis"


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SMEs DEBT FINANCING IN THE EU: ON THE EVE OF THE CORONACRISIS

Abstract

SMEs are the main drivers of economic development. As the debt crisis and coronavirus crisis show, despite their importance, they are extremely sensitive to economic downturns. Therefore, SMEs need to be supported through various tools. The paper is aimed at evaluating the SMEs' bank and governmental support in the northern and southern EU countries in two crisis periods and assessing the financial state of SMEs on the eve of coronacrisis using micro-level data.

It was proved that bank loans and credit lines remain the main sources of SMEs' financing. After the debt crisis, banks are becoming more loyal to SMEs.

It was proved that SMEs from the northern EU countries suffered less from the previous crisis and therefore started their recovery earlier than the southern ones in terms of profitability, liquidity and debt burden. In addition, it was shown that both groups on the eve of the new turbulence period were in better financial state compared to the previous debt crisis.

The southern EU countries suffered more from both crises. At the same time, due to effective governmental support and bank loyalty, their SMEs entered the coronacrisis at the same level of financial stability as the northern ones. Since the new support measures are concentrated primarily in the banking sector through loan guarantee schemes and reduced interest rates, it is essential to provide debt financing to high-quality borrowers and avoid the debt crisis in southern counties.

Keywords

bank loans, SMEs, COVID-19, credit lines, debt crisis,
financial indicators

JEL Classification

G01, G21, G28, E51

INTRODUCTION

SMEs in European countries have gone through a period of high instability in the last decades that was initially due to the global financial crisis (2008–2009) and even more stressful changes triggered by the sovereign debt crisis with the epicenter of the Southern European countries (Portugal, Italy, and Spain). The strengthening of macro-financial instability has had a significant impact on the aggregated microeconomic indicators of the SMEs sector, which, unlike large companies, is more sensitive to negative structural changes, while the undeniable social role of such companies in providing employment and competition as a key driver of the free market is indisputable.

During sovereign debt crises, SMEs were forced to operate in the conditions of high demand for external funding and increased bank requirements; in addition, the cost of a bank loan was also raised. Facing the 2012 debt crisis, governments decided to support SMEs and to obligate banks to tighten regulations in bank loan performance. It's generally accepted, that for SMEs in Southern European countries, it is more difficult to renew the pre-crisis indicators than in other coun-

tries of the European Union, because macroeconomic instability related to sovereign debt in them negatively affects the further economic growth. Despite this opinion, it is necessary to reconsider this point and learn from other countries that intend to join the European Union. The negative consequences of sovereign debt would be much deeper without government support in every country in the European Union.

The EU has just dealt with the debt crisis, and at the same time, the whole world has started to fight against the coronavirus infection. Once again, SMEs are under threat never seen before in the world.

The paper represents the analysis results of banking loan performance in different European countries and how SMEs survived in such conditions. In addition, it investigates the financial position of SMEs after the debt crisis and on the eve of the coronacrisis using micro-level time-series panel data.

1. LITERATURE REVIEW

A significant amount of literature has been published on the development of the EU after the debt crisis in the Southern European states. These studies relate to different branches of economics, because the crises in those countries have affected many areas. Less literature is devoted to the issues of coronavirus crisis.

It is revealed that in southern countries there is a nonlinear relationship between stock and real-estate rates of returns (Lou, 2017). This study makes a parallel between instability on the stock and real estate markets. The researcher suggests that this is also the reason for the deepening of sovereign crises in such called PIGS countries.

It was revealed that the market decreased only in Spain (Günay, 2015). There is a rational explanation why Spain was more fragile to changes at the stock market and LIBOR rates – the world mortgage crises enforced that process.

Many banks in the country positively related with the level of debt. Moreover, in southern EU countries this phenomenon is highly emphasized (Karpētis, Papadamou, & Varelas, 2017).

Batavia and Nandakumar (2016) offer to develop a trade private sector of the economy to avoid decline in the state budget balance to overcome the crisis.

According to Redondo (2016) and Maravalle and Claeys (2012), the crises were forced by pro-cycling factors of economic development. These scholars developed the model, which showed a re-

lationship between the level of pro-cycling policy and consumption and investment.

The fiscal behavior of the southern countries is remarkably similar to that of the northern countries. In fact, the southern EU countries' governments deep the problem by copying their stronger neighbors in this area (Fernandes & Mota, 2011). Eurozone crisis and its impact on other countries (for instance, China and India) was scrutinized by Dua and Tuteja (2017).

It is believed that during a financial crisis, SMEs' access to finance tends to be reduced (Korab & Pomenkova, 2015). It is also revealed that after a crisis, SMEs' access to finance has not improved. It had been caused by cutting cash flows of companies. Bremus and Neugebauer (2018) show that SMEs' access to finance was exacerbated by reduced cross-border loan inflows, and obviously, it led to an increase in credit prices.

Banks regard SMEs as a lending target group (Jenkins & Hossain, 2017). According to the current study, it is caused by factors such as active state support for SMEs during financial crises (Antoniuk, Gernego, Dyba, Polishchuk, & Sybirianska, 2017) and positive changes in macroeconomic environment. Moreover, it is considered that banks have more influence of SME lending compared to other performances.

It is not only external indicators that determine the behavior of banks. Domestic credit standards also affect loan activity of banks and SMEs (Kljucnikov, Sobekova, & Vincurová, 2018). Research results show that SMEs consider the standards quite

strong; at the same time, for different types of companies, these indicators are different. Thus, for small enterprises, the strictest standard is the absence of guarantees, while medium companies suffered from the liquidity problem.

Credit risk assessment also should be different for SMEs and big corporations. (Altman & Sabato, 2007). The researchers revealed that banks reconsidered their attitude to borrowers according to their size.

According to Siemiatkowski and Jankowska (2013), the southern EU countries and Ireland depended financially on external actors. They revealed that there was high level dependence not only on sovereign state debt, but also on private debt.

The macroeconomic perspective trends in sovereign debt and systematic risk across the EU have been studied recently (Popescu & Turcu, 2017). Italy and Greece were extremely important countries in terms of systematic risks.

Pros and cons of the bank-government cooperation was studied by Albertazzi, Ropele, Sene, and Signoretti (2013). The authors showed that banks' spread increasing had a negative impact on credit growth, and it is revealed with rising interest rates.

Matascu (2015) proved one-way causality from government incomes to expenditures in Greece and Italy. A little bit different situation is in Portugal: there is a causal relationship between government spending and its revenues. However, according to the same research, Ireland and Spain do not have this interdependence.

Shkarlet, Dubyna, Hrubliak, and Zhavoronok (2019) describe the impact of state support on national budget deficit. Using East and Central European countries as an example, they prove that it can be reduced with tax exemptions and deferments for business. Ivashchenko and Orlova (2017) are of the same opinion.

Despite a relatively short coronacrisis period, research papers on the issue have appeared recently. For instance, some scholars try to assess its impact on the global economy, analyzing the influence of social distance on economic activities (Ozili, & Thankom, 2020). Moreover, a system of anti-crisis

measures was proposed for Ukraine's economy in the spread of the coronavirus pandemic (Danylyshyn & Bohdan, 2020).

Nevertheless, given the short period of coronacrisis, it is quite early to judge their effectiveness. Therefore, the effects of state support during the post debt crises period (2013–2019) and on eve of coronacrisis (2019 till present) were studied to offer the most effective existing methods and typically new ones.

Aim

The paper aims to assess the SMEs' bank and governmental support in the northern and southern EU countries during two crisis periods and evaluate the financial position of SMEs on the eve of the coronacrisis using micro-level data.

2. RESEARCH FINDINGS

2.1. Credit products (bank loans and credit lines) in the SMEs' development

This research focuses on two groups of countries. The first group includes countries from the northern (France, Belgium, and Austria) and southern (Portugal, Spain, and Italy) parts of the EU. The first group is represented by more developed states (according to the level of GDP per capita). The second group is made up of the average developed countries of Western Europe. The sovereign debt crisis hit the economies of the southern EU countries to a greater extent (Portugal, Italy, and Spain).

There is a need for a detailed empirical analysis of the SME sector development during the phases of economic cycle: pre-crisis, global financial crisis, sovereign debt crisis and recovery periods in terms of key indicators of solvency, profitability and liquidity.

It is widely believed that after the global financial crisis, banks became less accessible to potential borrowers, while other alternative financial instruments for SME finance began to appear and develop extremely actively. Nevertheless, credit products remain popular.

Table 1. Main sources of SMEs financing in the EU countries in 2018, %

Source: Based on OECD (2018).

| Countries | Equity capital | Trade loans | Other loans | Grants | Internal funds | Bank loans | Leasing | Credit lines |
|----------------|----------------|-------------|-------------|--------|----------------|------------|---------|--------------|
| Austria | 8 | 21 | 22 | 30 | 32 | 49 | 54 | 63 |
| Belgium | 16 | 30 | 20 | 21 | 19 | 58 | 38 | 53 |
| Bulgaria | 3 | 25 | 27 | 26 | 36 | 44 | 45 | 61 |
| Croatia | 23 | 15 | 19 | 41 | 37 | 51 | 55 | 52 |
| Cyprus | 22 | 62 | 18 | 34 | 21 | 61 | 23 | 70 |
| Czech Republic | 2 | 16 | 18 | 34 | 23 | 42 | 48 | 49 |
| Denmark | 17 | 17 | 16 | 11 | 14 | 31 | 47 | 62 |
| Estonia | 18 | 20 | 25 | 20 | 40 | 41 | 55 | 30 |
| Finland | 25 | 35 | 33 | 25 | 34 | 64 | 69 | 73 |
| France | 21 | 26 | 15 | 30 | 32 | 66 | 52 | 54 |
| Germany | 13 | 14 | 27 | 30 | 25 | 48 | 59 | 52 |
| Greece | 26 | 56 | 19 | 46 | 16 | 56 | 26 | 37 |
| Hungary | 2 | 14 | 18 | 39 | 26 | 31 | 38 | 35 |
| Ireland | 15 | 71 | 26 | 28 | 42 | 59 | 53 | 77 |
| Italy | 2 | 52 | 13 | 52 | 28 | 55 | 26 | 59 |
| Latvia | 44 | 18 | 31 | 21 | 20 | 39 | 45 | 43 |
| Lithuania | 13 | 27 | 31 | 21 | 34 | 43 | 50 | 44 |
| Luxembourg | 25 | 31 | 30 | 22 | 26 | 52 | 34 | 58 |
| Malta | 19 | 84 | 19 | 38 | 25 | 57 | 35 | 83 |
| Netherlands | 28 | 30 | 32 | 13 | 15 | 45 | 41 | 60 |
| Poland | 4 | 44 | 17 | 31 | 22 | 43 | 59 | 57 |
| Portugal | 3 | 47 | 23 | 48 | 19 | 57 | 59 | 63 |
| Romania | 14 | 35 | 35 | 27 | 31 | 35 | 51 | 59 |
| Slovakia | 2 | 31 | 27 | 14 | 34 | 48 | 56 | 60 |
| Slovenia | 33 | 34 | 26 | 54 | 29 | 62 | 49 | 66 |
| Spain | 2 | 48 | 19 | 37 | 22 | 56 | 37 | 48 |
| Sweden | 58 | 19 | 25 | 13 | 33 | 34 | 56 | 52 |
| UK | 17 | 57 | 27 | 20 | 32 | 41 | 50 | 56 |

Despite claims that the alternative sources of finance for SMEs have become more and more popular after the 2008 world financial crises, bank loans and credit lines still get a huge part in founding in the EU countries. Table 1 shows that in most of the countries surveyed, bank loans are more than 50%, while many other European SMEs use financial instruments other than bank loans. The story with credit lines is slightly different, which in the most EU countries is more than 50%.

2.2. The SME's share of all outstanding business loans

According to the recent OECD study on finance for SMEs and entrepreneurs, banks in the countries under study do not always prefer to give loans to SMEs. Table 2 shows where banks have chose the SME lender strategy.

Table 2. The share of SMEs in all outstanding business loans in different EU countries, 2018, %

Source: Data compiled from selected OECD country profiles (2020).

| Range of percentage, % | Countries |
|------------------------|-----------------|
| > 75% | Portugal |
| 50% > 75% | Belgium, Spain |
| 20% > 49% | France, Austria |
| 0%-19% | Italy |

As Table 2 shows, loan portfolios demonstrate a loan strategy of the banks. Despite high percentage of credit products in the structure of SME's financing in the countries reviewed, banks continue to lend to other legal entities.

2.3. Dynamics of interest rates on loans to SMEs

Interest rate is a particularly important indicator in measuring access to finance for SMEs. In

Source: Data compiled from selected OECD country profiles (2020).

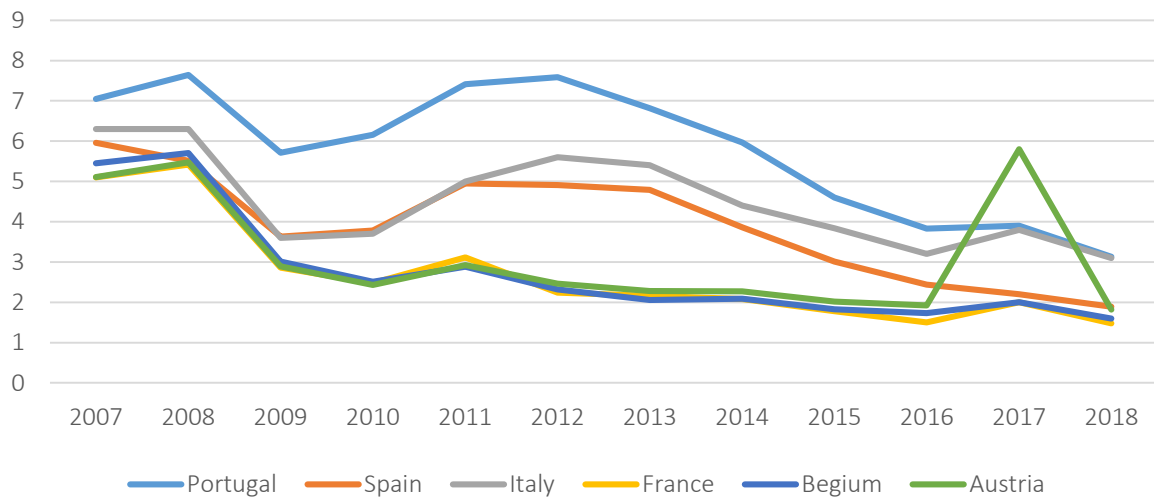


Figure 1. Dynamics of interest rates on loans to SMEs (2007–2018)

general, in the period from 2007 to 2016, interest rate decreased in all countries under consideration. Meanwhile, the situation was not stable: 2007 and 2008 saw some changes that were closely related to financial crisis. In 2011 and 2012 in these countries, interest rate rose, and it was caused by debt crisis in the EU. In addition, in 2017 a slight increase in percent rates was observed in Austria, France, Belgium, and Italy.

It should be noted that in the southern EU countries, there was a sharp decline in SME loan interest rates, while in France and Belgium they slightly decreased. This is related to policies for fostering SME's access to finance that were conducted by the governments, such as Juncker Plan.

2.4. SME loan rejection

The indicator of SME loan rejection provides information on bridging the needs between banks and SMEs. Figure 2 shows a positive downturn trend of loan rejections.

Whereas banking requirements to potential borrowers were not mitigated due to strong policy of central banks to improve the quality of their portfolios, this is likely to mean that SMEs have become more attentive and accurate in their demand and cooperation with these financial institutions. It is noticeable, that from 2010 to 2013, Austria had a controversial trend – the level of rejections was totally low. In addition, the level of SME loan rejections is from 5 to 10 percent in countries under consideration.

Source: Data compiled from selected OECD country profiles (2020).

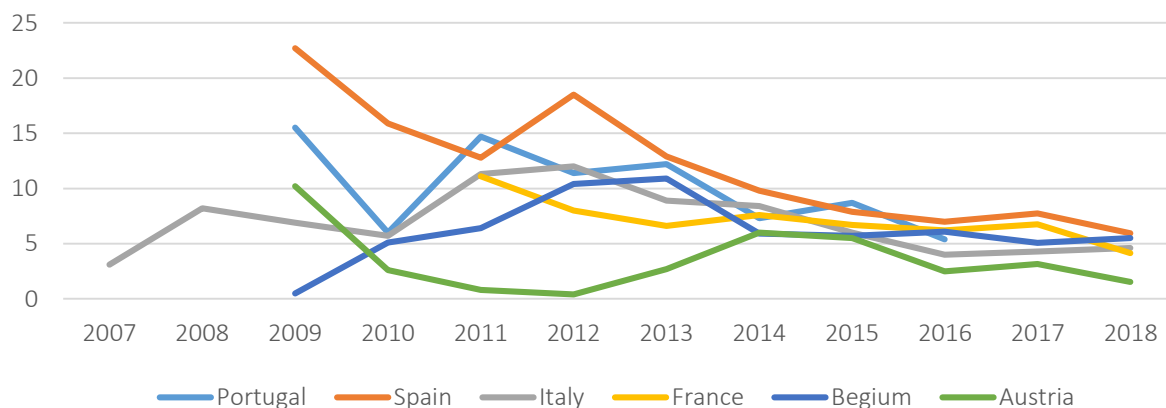


Figure 2. SME loan rejection rates from 2007 to 2018

Source: European Commission (Spring 2020).

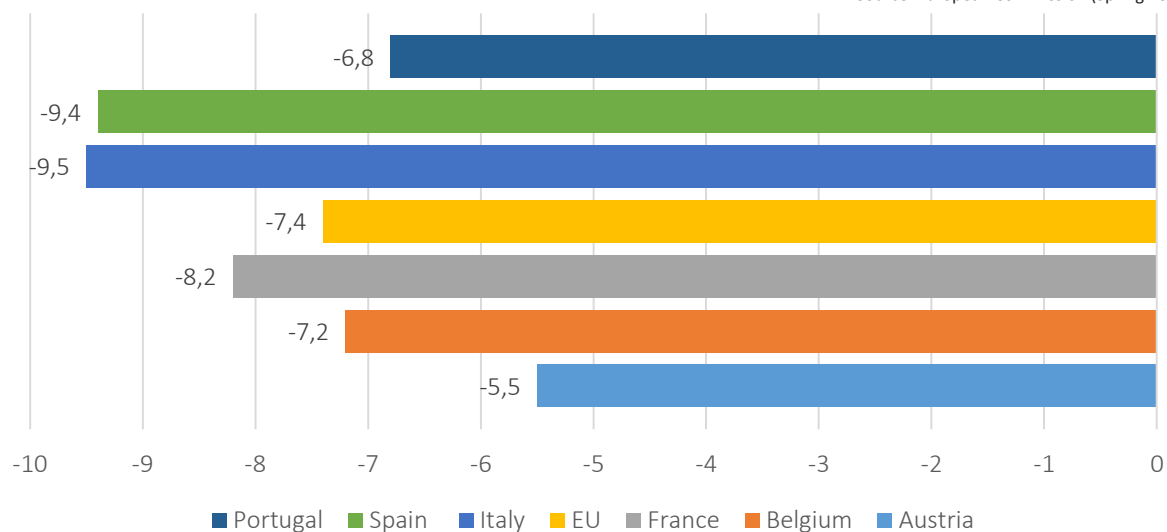


Figure 3. Change in GDP volume (percentage change compared to 2020)

The analyzed indicators describe an upward trend of SME development of countries reviewed. Nonetheless, one of the worries was the fall in the level of profitability in the northern countries in 2018. This requires further study and monitoring in subsequent periods to confirm this trend, which may be due to increased market concentration, increased inequality and high competitive pressure on SMEs from large companies. In addition, no one expected threats posed by the global pandemic to be more harmful than the aspects mentioned.

After claiming the lockdown, it was clear that the economies of the EU countries will suffer from its consequences. It should be noted that recent forecasts show that the EU economy will decline by 7.4% in 2020 (Figure 3), but will increase in 2021.

The prediction shows that Italy, Spain, and France will lose more than other countries. However, it will be related not to the previous debt crisis but to the coronavirus effects. The outlook for Belgium and Austria is rather optimistic. Their losses are expected to be less than average in other EU countries.

2.5. Government support for SME's access to finance in the aftermath of the debt crisis and during the coronacrisis

In the previous study, the types of the state support for SMS's development were classified. There

are direct and indirect, financial and non-financial types of government support. Table 3 shows in which way government fosters SME's access to finance in the EU countries.

As Table 3 shows, the governments of Portugal and France are very active in using support instruments to mitigate access to finance for SMEs. Other southern EU countries (Spain and Italy), and not only them, implement much fewer instruments. Especially in Italy, where government allows only the government loan guarantees, special guarantees and loans for startups, tax exemptions, and deferments. At the same time, Portugal government does not believe that special guarantees and loans for startups, business advice and consultancy, and credit mediation are effective to foster SME's access to finance.

While the state support of Spain does not suggest the use of special guarantees and loans for startups (as well as Portugal and Belgium), direct lending to SMEs, SME banks and business consulting services. Looking at the policies of these countries in the frame of SME lending, one can say that only government loan guarantees, subsidized interest rates, SME banks and their loans, and credit mediation affected banks. Other ones belong to different types of support instruments. It means that most governments cooperate with banks fragmentally.

Table 3. Ways of government support for SME's access to finance in EU countries (debt crisis period)

| Countries | Types of government support | | | | | | | | | |
|-----------|------------------------------|---|--|---------------------------|---|-----------|---------------------|----------------------------------|----------------------------|------------------|
| | Financial government support | | | | | | | Non-financial government support | | |
| | Direct | | | | Indirect | | | | | |
| | Government loan guarantees | Special guarantees and loans for startups | Government export guarantees, trade credit | Subsidized interest rates | Venture capital, equity funding, business angel support | SME banks | Direct lend to SMEs | Business advice consultancy | Tax exemptions, deferments | Credit mediation |
| Portugal | + | – | + | + | + | + | + | – | + | – |
| Spain | + | – | + | + | + | – | – | – | + | + |
| Italy | + | + | – | – | – | – | – | – | + | – |
| France | + | + | + | – | + | + | + | + | – | + |
| Austria | + | + | + | + | + | – | + | + | – | – |
| Belgium | + | – | + | – | + | – | + | + | + | + |

Note: “–” means that this country's government does not provide this type of support; “+” means that this country's government provides this type of support.

The reasons can be different: the emergence of alternative financial instruments, unwillingness of banks to cooperate with governments, instability of the banking system, decreased demand on loans from the side of SMEs, etc. Nevertheless, SMEs go to the banks and continue taking credits.

Returning to the issue of state support for SMEs in different EU countries, it is worth mentioning that overcoming of coronacrisis is also provided by state support (see Table 4). The countries analyzed were taken to check if the previous state support instruments are the same.

Table 4. Response of analyzed countries to COVID-19

Source: European Commission (Spring 2020) <https://ec.europa.eu/competition/>

| Country | Measure | | | | | | | |
|----------|-------------------|---|-----------------|---|-----------------|--|-------------------|---|
| | Guarantee | | Direct grant | | Soft loan | | Complex measure | |
| | Budget | Target | Budget | Target | Budget | Target | Budget | Target |
| Austria | EUR 9 billion | SMEs | X | X | X | X | EUR 15 billion | All companies except banks and financial institutions |
| Belgium | EUR 53.53 billion | SMEs and large companies (except for financial sector and government companies) | EUR 4.2 million | COVID-19 R&D projects | EUR 250 million | Start-ups and SMEs | X | X |
| France | EUR 13 billion | SMEs, Ad Hoc guarantees | EUR 3.4 billion | Microcompanies, SMEs | X | X | EUR 200.1 million | Companies from the transport industry |
| Italy | EUR 1.729 billion | Companies with less than 500 employees and self-employed persons | X | X | EUR 30 million | SMEs of agricultural, forestry and fishing sectors | EUR 150 million | SMEs of agricultural, forestry and fishing sectors |
| Spain | EUR 100 million | All companies except of banks and financial institutions | X | X | X | X | EUR 3,500 million | All companies except banks and financial institutions |
| Portugal | EUR 3 billion | SME, Small Mid caps and Midcaps | EUR 140 million | All companies that can produce COVID-19 related goods | X | X | EUR 1.62 billion | Fisheries and aquaculture SMEs |

A comparative analysis of the both anti-crisis support periods shows that guarantees are a common measure to overcome crisis for SMEs. However, direct grant and soft loans are common to COVID-19 session for SMEs, whereas a direct loan was suitable in terms of the anti-debt crisis period. Belgium, France, Austria, and southern EU countries disagree with the offered state support measures. This depends not only from the country's level of development and prosperity, but also from the damage caused by COVID-19. At the same time, in the context of common measures, anti COVID-19 crisis actions in most countries are focused on agriculture, fisheries, aquaculture and forestry sector. In addition, governments of analyzed countries aim to support both SMEs and large companies, understanding the threats of unemployment and other consequent effects.

While the previous crisis was primarily located in the financial sector, the current one will have a dramatic impact on SMEs. The southern EU countries, whose economy is mainly service-oriented and tourism-oriented, will be particularly affected.

With the aim of economy support, The European Commission introduced a "Temporary Framework for State aid measures to support the economy in the current COVID-19 outbreak" (European Union, 2020). There are five general support schemes for companies, including tax benefits, government guarantees, direct grants, subsidized interest rates, and export credit insurance guarantees.

According to the data, most of analyzed countries used the mechanism of state guarantees and direct grants. At the same time, southern countries are also likely to receive support from European structural funds. However, it is also important to provide resources only to those companies that are financially sustainable enough. Otherwise, there is a risk of new banking sovereign debt crisis for the southern EU countries.

As the main support measures are aimed at SMEs, it is important to explore the financial situation of the north and south in the pre-crisis period.

2.6. Micro-level data evidence

2.6.1. Data

The study was based on cross-sectional, cross-country time series data for the 12-year period (2006–2018) from BACH Database. Two datasets were used: the first one contains non-financial SMEs with a turnover less than 50M euro from France, Austria and Belgium (so-called North), the second dataset consists of SME companies from Italy, Spain and Portugal (so-called South).

2.6.2. Variables

1. Liabilities-to-equity ratio (%). Higher values show that a company relies more on creditors rather than on shareholder financing.
2. Current debt-to-total assets ratio (%). The higher value of the indicator increases the company's financial risks.
3. Cash-to-total assets ratio (%). The higher the indicator, the more liquid is the firm.
4. EBITDA over interest on financial debt shows how many times a company can pay interest on debt with its EBITDA.
5. EBITDA-to-net turnover ratio indicates the portion of operating profit in the company's total sales.

The formulas of the indicators are given in Table 5.

Table 5. Indicators and formulas

| Group | Ratio | Formula |
|---------------------|--|--|
| Financial structure | Liabilities-to-equity | Total liability/Total equity |
| | Current debt-to-total assets | Current debt/Total balance sheet |
| Liquidity | Cash-to-total assets | Cash/Total balance sheet |
| Debt service ratio | EBITDA over interest on financial debt | EBITDA/Interest on financial debts |
| Profitability | EBITDA-to-net turnover | EBITDA/Net turnover |
| Activity | Operating working capital/Net turnover | Operating working capital/Net turnover |

Southern EU countries were characterized by worse GDP, inflation rate, CDS spread interest rates, especially during the sovereign debt crisis,

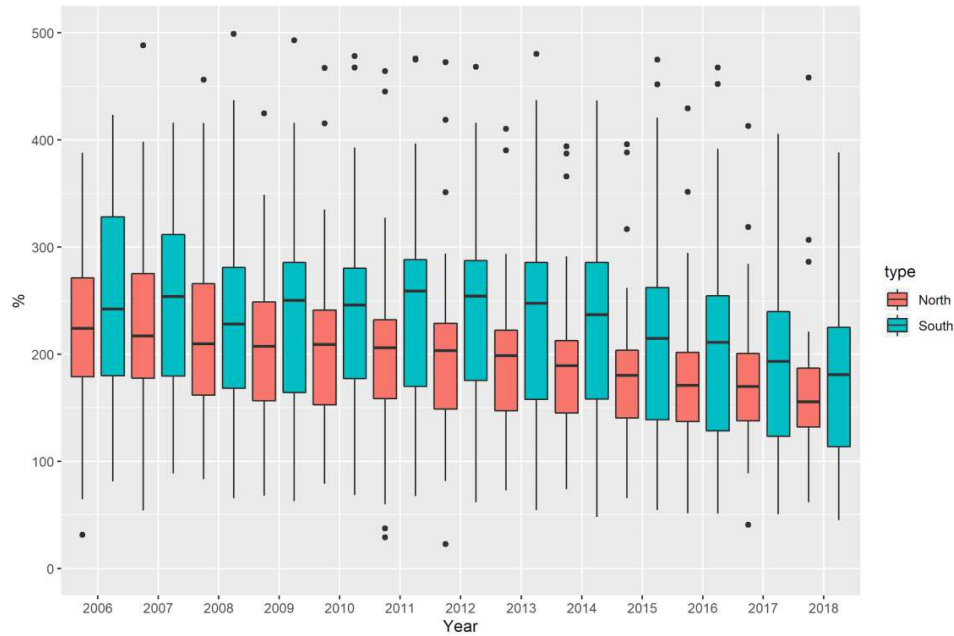


Figure 4. Liabilities-to-equity ratio (2006–2018)

and higher unemployment rate. Naturally, all this has affected the quality of doing business.

2.6.3. Financial structure ratios

Starting with the same levels of the liabilities-to-equity ratio of SMEs from the northern and southern EU countries in the pre-crisis 2006–2008 period, after their entry into the turbulence period of 2010–2013, the divergence took

place. Northern companies managed to accelerate deleveraging process by paying off excessive debt capital and increasing equity. At the same time, southern SMEs faced an unfavorable macroeconomic environment with limited capacity to reduce debt pressures. During the sovereign debt crisis period, the median values of the indicator increased, after which they fell, but at a lower rate than the Northern countries. This situation reflects more unfavorable macroeconomic condi-

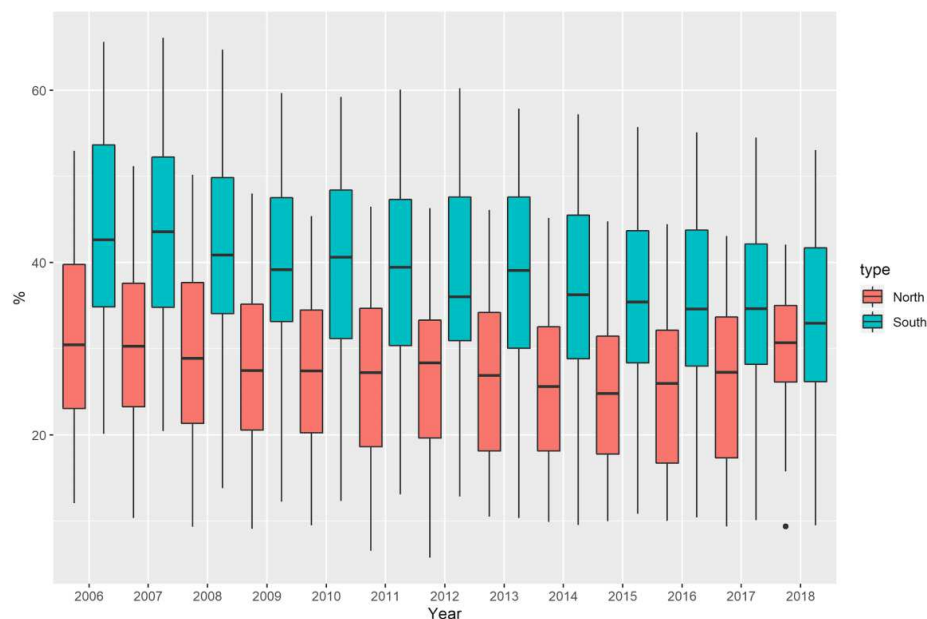


Figure 5. Current debt-to-total assets ratio (2006–2018)

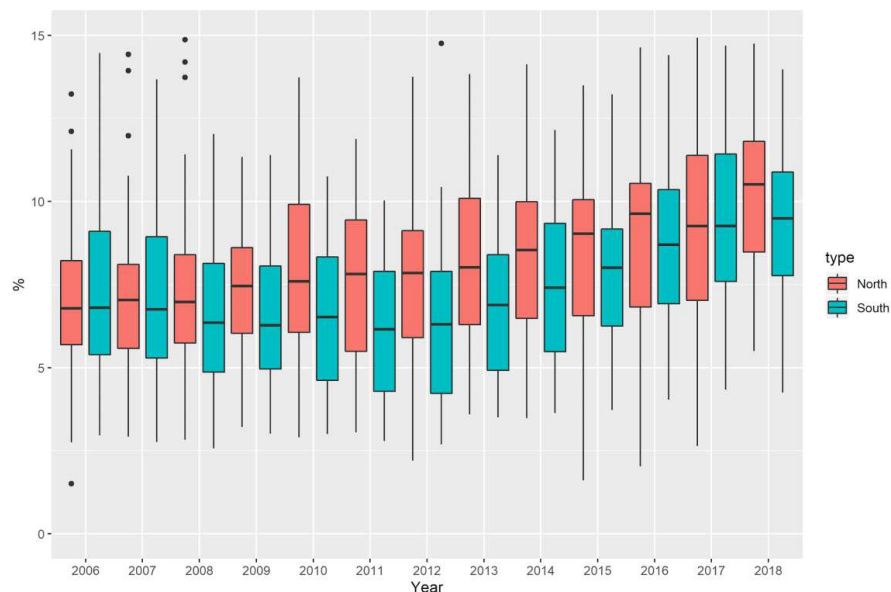


Figure 6. Cash-to-total assets ratio (2006–2018)

tions and the loss of investors' interest in countries with high country risk premium, which kept up the accumulation of own capital. However, starting from 2014–2015, the deleveraging process can be observed.

More significant were the differences in the current debt-to-total assets ratio. As Figure 5 shows, in 2016, companies from the southern EU countries have a share of short-term debt in assets by 10–12 bps higher than those of the northern countries. At the same time, due to the global and sovereign debt crisis, the overall level of short-term debt gradually decreases. The significant depend-

ence on short-term debt financing of the companies of the South results in exposure to operational risk due to higher financial costs, which include total principal and interest payments. In contrast to the previous chart, a new wave of leveraging for Northern countries can be observed, which is reflected in an increase in short-term debt.

2.6.4. Liquidity ratio

As a result of overcoming the sovereign debt crisis, companies in the North and South demonstrated a better ability to repay liabilities, substantially increasing liquidity ratios, in particular the cash-

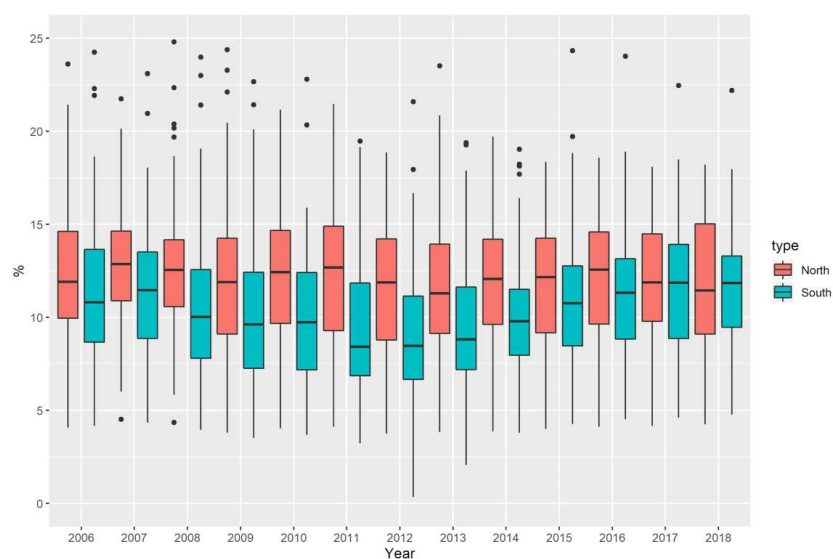


Figure 7. EBITDA/Net turnover (2006–2018)

to-total assets ratio. However, the improvement of liquidity indicators in the countries of the North began in 2009 after the global crisis immediately, while the countries of the South began to increase their liquidity only after the completion of the 2014 sovereign debt crisis. However, the median value of this indicator for companies of the South cannot reach levels of Northern companies, despite the same levels in the pre crisis period.

2.6.5. Profitability ratio

During the new normal period, Europe saw a certain overall decline in profitability in terms of EBITDA/net turnover ratio. However, the median income of the northern EU countries was more sustainable to the pressure of crisis factors, while the yields of southern companies appeared to be more volatile – basically lower during the crisis periods (2007–2015) and relatively higher in 2017. The decline in profitability in the North may be due to the global slowdown recorded by the IMF in 2018 and the likely increase in the market power of a large business, which adversely affects the SMEs' performance.

3. DISCUSSION

Micro-level data were analyzed using the exploratory data analysis method. It allowed revealing patterns and key characteristics of the datasets, identifying the most significant variables that indicate differences between SMEs' debt structure of the northern and southern EU countries.

The analysis of the SMEs' funding sources demonstrates that despite the alternative financing development caused by the world financial crisis, credit lines and bank loans still play a crucial role in SMEs' development. It means that government should pay attention to banking performance during and after coronacrisis. However, because of the limited access to data on SMEs' funding sources and incomplete data on SMEs' industries, it is hard to claim which SME industry needs more banking support in accordance of government aid. Therefore, the main recommendation for public authorities is to develop an action plan to support banks that are highly engaged in banking loans and credit lines for SMEs.

Meanwhile, it should be noted that banks' loyalty to SMEs grew throughout the period under review. Banking loans on interest rates in the southern and northern EU countries declined gradually. In addition, the level of rejection in loans smoothly came down as well. However, for deeper understanding the reasons of such phenomena, data about SME industries should be collected to reveal banking preferences in credit performance during the coronacrisis period.

An analysis of the EU government aid to SMEs shows that despite the difference in the nature of the debt crisis and the coronavirus crisis, there are some common measures (for instance, guarantees, soft landing and direct funding). On the other hand, the effectiveness of the traditional support instruments should be explored additionally in the nearest future. The lack of quantitative data on SMEs' performance does not allow making unambiguous conclusions about the impact of the traditional government aid.

Throughout the study period, differences in the levels of debt burden of SMEs in the northern and southern EU countries were observed. However, the biggest difference was observed in the post-crisis period. Northern SMEs were able to reduce their debt levels and attract equity financing, while the sovereign debt crisis in the southern EU countries significantly reduced the interest of investors and led to an additional increase in the debt burden.

However, since 2013, in both groups of countries a process of deleveraging had started. More likely, the share of long-term debt financing decreases, while the levels of current debt remain stable. At the same time, SMEs in the South have significantly higher levels of the current debt-to-total assets ratio, which is a consequence of the debt crisis in these countries and, accordingly, the difficulty of companies to attract long-term bank financing.

The crisis also affected the financial condition of companies in different ways. Thus, companies in the North were able to quickly restore their ability to service debts, while the companies in the South began to demonstrate the restoration of liquidity only in 2014. The analysis suggests that on the eve of the coronacrisis, companies are in better shape than before the global financial crisis. This is confirmed by higher liquidity ratios, better debt ser-

vice capacity and lower debt burden. At the same time, the profitability indicators for the southern EU countries are at a higher level compared to 2006, while for the southern countries they are approximately the same.

This study does not focus on the analysis of individual industries. Therefore, it is necessary to explore the impact of the coronavirus crisis on certain activities of SMEs, in particular on the service industry.

CONCLUSION

The results of this investigation show that the most popular sources of finance – bank loans and credit lines – remain in high demand despite the growth of alternative sources of finance. The most obvious finding from this study is that these types of bank products are also popular in the southern EU countries and other EU members. Even in crises, SMEs prefer to use them despite the changes in banks' behavior. After 2012 crises, obtaining loans for SMEs became more difficult in almost all countries of the EU; at the same time, the situation was mitigated by the expansion of government support for SMEs. In addition, it was also revealed that factors such as loan rejection, short-term lending, interest rate of a bank loan have the same tendency in all countries under consideration: the first years after the crisis, their indicators sharply increased and then slightly decreased.

The difference is that in the countries of the South, interest rates of bank loans are naturally higher than in other considered countries analyzed, and nevertheless, after the crisis, they decline.

Indicators of debt, liquidity, and profitability of the southern EU countries were more volatile and sensitive to macro crisis pressure. Evidence shows that the negative impact of the sovereign debt crisis on SMEs in southern European countries was more powerful compared to the negative externalities of the global financial crisis.

Overall, this study notes post-crisis stabilization and improvement in the overall level of financial sustainability of European SMEs, which are at their best level over a 14-year period. It is believed that this sector was best prepared for possible crisis scenarios in the future. The appropriate level of SMEs' debt burden on the eve of the COVID-19 session and stepped-up government support are expected to cope with the effects of the coronacrisis.

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REFERENCES

1. Albertazzi, U., Ropele, T., Sene, G., & Signoretti, F. M. (2013). The impact of the sovereign debt crisis on the activity of Italian banks. *Journal of Banking & Finance*, 46(C), 387-402. <https://doi.org/10.1016/j.jbank-fin.2014.05.005>
2. Altman, E., & Sabato, G. (2007). Modelling Credit Risk for SMEs: Evidence from the U.S. Market. *Abacus*, 43(3), 332-357. <https://doi.org/10.1111/j.1467-6281.2007.00234.x>
3. Antoniuk, L., Gernego, I., Dyba, V., Polishchuk, Y., & Sybirianska, Y. (2017). Barriers and opportunities for hi-tech innovative small and medium enterprises development in the 4th industrial revolution era. *Problems and Perspectives in Management*, 15(4), 100-113. [https://doi.org/10.21511/ppm.15\(4\).2017.09](https://doi.org/10.21511/ppm.15(4).2017.09)
4. BACH. (2018). *BACH Userguide Summary*. The Bank for the Accounts of Companies Harmonized. Retrieved from https://www.banque-france.fr/sites/default/files/media/2018/11/13/note115_0.pdf
5. Batavia, B., & Nandakumar, P. (2016). Did EMU membership cause the "Dutch disease" in the PIGS nations? *Global Finance Journal*, 31, 31-41. <https://doi.org/10.1016/j.gfj.2016.06.001>
6. Bremus, F., & Neugebauer, K. (2018). Reduced cross-border lending and financing costs of SMEs. *Journal of International Money and Finance*, 80, 35-58. <https://doi.org/10.1016/j.jimon-fin.2017.09.006>
7. Danylyshyn, B., & Bohdan, I. (2020). Developing a system of anti-crisis measures for Ukraine's economy in the spread of the coronavirus pandemic. *Banks and Bank Systems*, 15(2), 1-15. [https://doi.org/10.21511/bbs.15\(2\).2020.01](https://doi.org/10.21511/bbs.15(2).2020.01)
8. Dua, P., & Tuteja, D. (2017). Impact of Eurozone sovereign debt crisis on China and India. *The Singapore Economic Review*, 62(5), 1137-1164. <https://doi.org/10.1142/S021759081550099X>
9. European Commission. (Spring 2020). *European Economic Forecast: A deep and uneven recession, an uncertain recovery* (Institutional Paper No. 125). Retrieved from https://ec.europa.eu/info/sites/info/files/economy-finance/ip125_en.pdf
10. European Union (EU). (2020). Temporary Framework for State aid measures to support the economy in the current COVID-19 outbreak (Communication from The Commission). *Official Journal of the European Union*, C91, 1-9. Retrieved from [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC0320\(03\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC0320(03)&from=EN)
11. Fernandes, C., & Mota, P. (2011). The roots of the Eurozone sovereign debt crisis: PIGS vs non-PIGS. *Panoeconomicus*, 58(5), 631-649. <https://doi.org/10.2298/PAN1105631F>
12. Günay, S. (2015). Stock Market Liquidity and O/N LIBOR Rates: A Study for PIGS Countries and Turkey. *Mediterranean Journal of Social Sciences*, 6(3), 297-305. <https://doi.org/10.5901/mjss.2015.v6n3p297>
13. Ivashchenko, A. I., & Orlova, N. S. (2017). Comparative analysis of some EU and EU associated countries to identify the phenomenon of business development in post-socialist countries. *Economic Annals-XXI*, 163(1-2), 22-25. <https://doi.org/10.21003/ea.V163-04>
14. Jenkins, H., & Hossain, M. (2017). An analysis of the macroeconomic conditions required for SME lending: Evidence from Turkey and other emerging market countries. *Panoeconomicus*, 64(1), 77-92. <https://doi.org/10.2298/PAN140213008J>
15. Karpets, C., Papadamou, S., & Varelas, E. (2017). The Role of the Number of Banks on Debt Dynamics: Evidence from Eurozone Countries. *Review of Economics*, 68(1), 41-62. <https://doi.org/10.1515/roe-2017-0001>
16. Kljucnikov, A., Sobekova-Majkova, M., & Vincurová, Z. (2018). Credit standards and factors affecting their strictness in the segment of SMEs in the Slovakia. *Journal of International Studies*, 11(1), 163-176. <https://doi.org/10.14254/2071-8330.2018/11-1/12>
17. Koráb, P., & Poměnková, J. (2015). Access to Credit of SMEs in the Czech Republic During the Financial Crisis and in the Post-crisis Period. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(4), 1297-1302. <https://doi.org/10.11118/actaun201563041297>
18. Lou, T. (2016). Nonlinear causality relationship between stock and real-estate returns in PIGS countries: wealth effect or credit-price effect. *Applied Economics Letters*, 24(11), 736-741. <https://doi.org/10.1080/13504851.2016.1226480>
19. Maravalle, A., & Claeys, P. (2012). Boom-bust cycles and procyclical fiscal policy in a small open economy. *Journal of Policy Modeling*, 34(5), 735-754. <https://doi.org/10.1016/j.jpol-mod.2012.01.011>
20. Matascu, M. (2015). A bootstrap panel Granger causality analysis of government revenues and expenditures in the PIIGS countries. *Economic Bulletin*, 35, 111-142. Retrieved from <https://halshs.archives-ouvertes.fr/halshs-01111809>
21. OECD. (2015). *New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments*. OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264240957-en>
22. OECD. (2018). Enhancing SME access to diversified financing instruments. In *OECD Ministerial Conference on Small and Medium-sized Enterprises* (pp. 53-71).

- Mexico City, 22-23 February 2018. Paris: OECD. <https://doi.org/10.1787/16fe6707-en>
23. OECD. (2020). *Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard*. OECD Publishing, Paris. <https://doi.org/10.1787/061fe03d-en>
 24. Ozili, P. K., & Thankom, A. (2020). *Spillover of COVID-19: Impact on the Global Economy*. <http://dx.doi.org/10.2139/ssrn.3562570>
 25. Popescu, A., & Turcu, C. (2017). Sovereign Debt and Systemic Risk in the Eurozone. A Macroeconomic Perspective. *Economic Modelling*, 67, 275-284. <https://doi.org/10.1016/j.econmod.2016.12.032>
 26. Redondo, J. (2016). PIGS: Fiscal austerity, structural reforms and potential growth. *Revista de Economia Mundial*, 43, 161-178. (In Spanish). Retrieved from <http://rabida.uhu.es/dspace/bitstream/handle/10272/12779/7.BELLOD.P4.pdf?sequence=2>
 27. Shkarlet, S., Dubyna, M., Hrubliak, O., & Zhavoronok, A. (2019). Theoretical and applied provisions of the research of the state budget deficit in the countries of Central and Eastern Europe. *Administrative Management Public*, 32, 120-138. <https://doi.org/10.24818/amp/2019.32-09>
 28. Siemiatkowski, P., & Jankowska, E. (2013). Financial Dependence of the PIIGS Countries. *Journal of World Economic Research*, 2(5), 89-94. <https://doi.org/10.11648/j.jwer.20130205.12>
 29. State aid cases 2020. European Commission. Viewed 16 May 2020. Retrieved from https://ec.europa.eu/competition/elojade/isef/index.cfm?fuseaction=dsp_sa_by_date