Are insolvency proceedings opened too late? The case of Germany, Croatia and Slovakia

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ARE INSOLVENCY PROCEEDINGS OPENED TOO LATE? THE CASE OF GERMANY, CROATIA AND SLOVAKIA

Abstract

Purpose: The aim was to analyze insolvency proceedings in Germany, Croatia and Slovakia and answer the research question whether insolvency proceedings are opened too late in the observed countries and how this issue can be explained.

Methodology: Comparative analysis of insolvency systems in Germany, Croatia, and Slovakia was conducted. Furthermore, the financial profile (liquidity) of firms in pre-insolvency and insolvency proceedings in Germany, Slovakia and Croatia was analyzed and respective results were compared with data on government effectiveness and the rule of law in the observed countries. The one-way ANOVA was performed to test the differences in liquidity among companies that initiated pre-insolvency and insolvency proceedings.

Results: The results indicate that German companies respond to signs of crises earlier in comparison to Croatian and Slovakian companies and these differences cannot be explained only by criminal law measures which are not equally effective across jurisdictions, but they depend to a large extent on government effectiveness and the rule of law in a country.

Conclusion: The results show that despite the similarities in the civil law frameworks, insolvency proceedings in Croatia and Slovakia are still initiated on average much later than in Germany. Moreover, according to the results, criminal law sanctions against the late initiation of insolvency proceedings can have preventive effects. However, while they can increase the number of timely insolvency proceedings, their effectiveness is still limited by the efficiency of the judicial system measured by the strength of institutions and their consistent application.

Keywords: Insolvency, insolvency proceedings, criminal law, delayed insolvency

1. Introduction

The main objectives of modern (Goode, 2011, 10 f.) insolvency proceedings, especially in EU countries, are rescue, debt settlement, reorganization or liquidation of a debtor[1]. Academics point out that "corporate failure remains a critical financial concern, with implications for both firms and financial institutions" (Veganzones & Severin, 2021, p. 204). Borchert et al. emphasize that in times of economic crises, "companies are exposed to increased financial distress" (Borchert et al., 2023, p. 348), while Pervan et al. (2018) state that firm failure is a topic of special interest in times of recession and global financial crisis. In the modern environment, where companies are facing consequences of the COVID 19 pandemic, an unstable political and economic situation as well as the global economic crisis, the issue of firm failure and insolvency proceedings is again a topic of interest among practitioners and researchers. Insolvency proceedings are necessary to protect the interests of creditors and to shield the market from companies entering into additional contracts for transactions, which they cannot fulfill (Hess, 2013, 39 f.). Therefore, insolvency proceedings play an important role as a stabilizing and control mechanism (Keay, 2000, 510 f.). However, in order to have this stabilizing effect, insolvency proceedings must be initiated in a timely manner. This poses a serious problem in practice, as the directors, who are usually in the best position to identify the existence of grounds for the company's insolvency, have a vested interest in delaying insolvency proceedings and the resulting shift of power to the company's creditors. Therefore, the legislature must create mechanisms to ensure compliance by directors. These mechanisms can range from civil liability rules to criminal sanctions.

In our research, we analyzed three countries that have similar regulations regarding the initiation of insolvency proceedings and generally similar systems of civil law, i.e., Germany, Croatia and Slovakia. Despite similarities in the legal framework, it is still considered that, especially in emerging economies such as Croatia and Slovakia, "legal enforcement and creditor protection are substandard" (Tomas Žiković, 2018, p. 23). Couwenberg (2001) states that in addition to bankruptcy law, other rules and regulations affect the initiation of liquidation proceedings as well as the ways of their operationalization. Hence our assumption is that despite the similarities in the civil law frameworks, insolvency proceedings in Croatia and Slovakia are still initiated on average much later than in Germany and this could be explained by differences in the efficiency of the judicial system.

Empirical data published by Doing Business[2] show that insolvency proceedings lead to very different outcomes as measured by receivables recovery rates. While Germany achieves a moderate/good recovery rate value of 79.8%, the other two countries have low recovery rates (Croatia 35.3%, and Slovakia 46.1%). We argue that an important factor for such low receivables recovery rates in Croatia and Slovakia is related to the late opening of insolvency proceedings, while the conditions for initiating the procedure were met earlier. Other authors also warn against opening bankruptcy or pre-bankruptcy proceedings too late (for example Laitinen, 2011; Tomas Žiković, 2018; Pervan et al., 2018). Therefore, the research question within this paper is whether insolvency proceedings are opened too late in the selected countries and how this issue can be explained. In order to answer the research question we performed a liquidity analysis of firms in pre-insolvency and insolvency proceedings in selected countries. After that, a comparative overview of insolvency proceedings regulation was provided and criminal sanctions for delaying the initiation of insolvency proceedings were determined. We assume that these sanctions are not equally effective across the observed countries, but they depend to a large extent on the efficiency of the judicial system. Claessens & Klapper point out that "in addition to legal rights, there is a need for an efficient judicial system to enforce these rights or at least to serve as credible enforcement threat and to speedily conduct the process of liquidation or restructuring when so desired" (Claessens & Klapper, 2006, p. 9). Following their approach, we use the rule of law and government effectiveness indicators for measuring the efficiency of judicial systems in the observed countries. The research results have shown that insolvency proceedings in Croatia and Slovakia are on average initiated too late and that companies continue to operate despite the fact that they fulfill mandatory insolvency reasons. Furthermore, the results indicate that criminal law sanctions against the late initiation of insolvency by it-

1 Regulation (EU) 2015/848 of the European Parliament and of the Council of 20 May 2015 on insolvency proceedings, L 141/19, Art. 1(1).

2 https://www.doingbusiness.org/en/rankings

self cannot explain detected differences in liquidity. These differences can be explained by dissimilarities in indicators related to government effectiveness and the rule of law, which represent the efficiency of judicial systems in the observed countries.

The paper is organized as follows. After the introductory section, Section 2 of the paper presents features of insolvency proceedings regulation analyzed in the observed countries. Section 3 presents a comprehensive economic analysis of key aspects of bankruptcy and pre-bankruptcy procedures in Germany, Croatia and Slovakia. In this section, key findings and discussion are presented. The final section brings concluding remarks on the topic.

2. A comparative overview of insolvency proceedings regulation in Germany, Slovakia and Croatia

One of the key objectives of an effective insolvency system is value preservation and that "insolvency procedures should be designed and implemented to preserve and maximize the total value ultimately available to creditors" (EBRD, 2021, p. 4). Moreover, Ravi states that "one of the goals of the insolvency regime is to preserve value, delays in proceedings that lead to further erosion of value are particularly important to guard against" (Ravi, 2015, p. 22). Aalberts et al. (2019) say that "strategic bankruptcy" is aimed at preserving firm value. While the objective of preserving a firm's asset value impacts the design of almost all insolvency systems around the world, the mechanisms to achieve a high level of asset value protection vary significantly. As this paper aims to answer a very specific question by using a comparative approach, we chose to minimize the differences in legal systems by analyzing EU countries, which share the *acquis communautaire* and fundamental human rights principles, but have succeeded, to varying extents, in establishing strong institutions.

Certain common factors governing the initiation of insolvency proceedings have been established within many EU member states. In this regard, indicators that may trigger insolvency proceedings include: (1) pending illiquidity, (2) illiquidity, and (3) over-indebtedness, with the latter two being usually mandatory insolvency reasons for the debtor (Drescher, 2014, p. 49). While the criteria for initiating insolvency proceedings may be similar in general, there are wide variations with regard to the mechanisms meant to ensure timely compliance with those rules. Namely, countries have implemented various rules to ensure timely initiations of insolvency proceedings including civil law rules that grant claims against managers, fines and criminal law sanctions. While these rules aim to improve compliance with mandatory insolvency law, they often have very harsh consequences for managers and other accountable individuals.

2.1 German insolvency regulation

In Germany, insolvency proceedings are regulated by the Insolvency Statute (*Insolvenzordnung* – InsO)[3]. Grounds for insolvency under German law can be divided into mandatory and voluntary reasons. The two mandatory reasons are illiquidity, which occurs when the debtor is unable to service its due debt obligations, and over-indebtedness, which exists when the assets of a corporation do not cover its liabilities. Illiquidity is limited by the factor that it cannot be assumed based on temporary liquidity gaps that might occur for example between large customer payments or during a refinancing procedure. Furthermore, the value of assets within over-indebtedness is dependent on a projection of chances for a business to continue. Only if it can reasonably be assumed that the business will continue (Morgen & Rathje, 2018, 1955 f.; Tresselt & Schlott, 2017, 193 f.), the value of assets can be based on such continuation and not their liquidation value. As a ground for voluntary filing, the debtor can initiate the procedure in the case of pending illiquidity, which occurs when it becomes predominantly probable that the debtor will become illiquid.

While both the debtor and the creditor are authorized to file for insolvency under mandatory insolvency reasons, only the debtor can initiate the procedure in the case of pending illiquidity. However, it is always the obligation of the debtor's directors to initiate insolvency proceedings if mandatory insolvency reasons exist. A violation of this obligation constitutes a criminal offense, which, in the case of negligence, carries a prison sentence of up to one year or a fine. Furthermore, complex case law exists on civil law obligations of directors and directors' insurance providers who violate their obligations under para. 15a InsO.

3 Insolvenzordnung of 5.10.1994 (BGBl. I S. 2866), last amendment 22.12.2020 (BGBl. I S. 3328).

2.2 Croatian insolvency regulation

Croatian law was strongly influenced by German sources. Therefore, it is no surprise that the Croatian Insolvency Act[4] was largely based on German insolvency law (Borić & Petrović, 2000, p. 58; Garašić, 2008, para. 3; Bilić, 2013, p. 16). As a result, Croatian insolvency law contains the same mandatory and voluntary insolvency reasons. Furthermore, criminal law sanctions also carry a prison sentence of up to one year or a fine. Other sanctions like directors' civil liability also exist, even though directors insurance is less frequent in practice. However, while German insolvency law has been for a long time the main influence on national legislation, in recent years there have been some major changes in Croatian insolvency law, inspired by other legal systems, especially that of the United States. The US system differentiates between bankruptcy and restructuring procedures and provides for different sets of rules for those respective categories (Cheeseman, 2013, 471 f.; Twomey & Jennings, 2008, p. 704). However, reforms that were made did not remove the existing criminal law sanctions from the system.

2.3 Slovakian insolvency regulation

In Slovakia, insolvency proceedings are regulated by Act No. 7/2005 Coll. on Bankruptcy and Restructuring and on Amendments and Supplements to Certain Acts ("BRA"). The Slovakian system also contains the insolvency reasons described above. A debtor is considered insolvent if it is cash-flow insolvent or if it suffers from over-indebtedness (BRA Act No. 7/2005 § 3(1)). A legal person is considered insolvent on the grounds of cash-flow insolvency if it is unable to fulfill obligations towards at least two creditors for over 30 days after the end of the maturity period (BRA Act No. 7/2005 § 3(2)). In a similar vein, over-indebtedness also requires the debtor to have at least two creditors, but for this requirement, the total value of the debt has to exceed its total asset value determined under the rules of the BRA. It is important to notice that valuations of assets and liabilities can generally be based on the premise of the continuation of business activities unless the continuation of business activity cannot be reasonably assumed. The debtor is required to follow its financial situation and prevent insolvency. If despite all efforts to prevent insolvency the debtor becomes insolvent, this triggers the obligation to submit an application for the announcement of insolvency within 30 days from the day on which the debtor learned that the criteria defined above are fulfilled, or from the moment the debtor would have learned it if they had taken reasonable professional care. If the person liable to file for bankruptcy on behalf of the debtor breaches the obligation to file for bankruptcy in good time, this is ground for a penalty that cannot be avoided through third-party agreements. The person shall furthermore be liable to the creditors for damage unless they prove that they acted with professional diligence.

Slovakian insolvency law has furthermore gone through multiple changes aimed at improving compliance. Especially important changes included the introduction of the so-called register of disqualified persons under § 13a of the Commercial Code in 2016. Furthermore, the key change for our analysis is another important piece of legislation, which calls for greater responsibility of statutory bodies. Act No. 264/2017 Coll. of 12 October 2017 (among other things) extended the factual nature of the criminal offense of obstruction of bankruptcy or settlement proceedings to the obligation to file a petition for the declaration of bankruptcy in time (Poláková et al., 2018, p. 127). If this rule is violated, directors face sanctions ranging from 6 months to 5 years in prison, or 3 years to 10 years if additional requirements are met. Slovakian insolvency law thus has more severe sanctions in place than the respective laws in both Croatia and Germany.

3. Empirical analysis, results and discussion

To understand the underlying relations between the various indicators and possible causes of the delayed opening of insolvency proceedings, it is essential to know the main economic mechanisms influencing the decisions of the parties involved. The following text provides an overview of previous research dealing with business failure as well as the results of conducted analysis of the financial profile of failed companies.

3.1 Previous research in business literature

Previous accounting and finance research in this area can be classified into two groups, i.e., pre-bankruptcy prediction research and post-bankruptcy prediction research (Laitinen, 2011, p. 171). It is possible to point out a whole series of studies in this area, and in what follows, selected studies relevant to the

4 Stečajni zakon, Narodne novine, 71/15, 104/17.

context of this paper are presented in more detail. In 2001, Couwenberg (2001) conducted a comparative study aimed at identifying how different systems are designed to improve the chances of survival of the debtor company. The author compared the survival rates in five different countries (the US, the UK, France, Germany and Sweden), and concluded that survival rates for selected Western European countries are comparably low and offer more questions than answers. Therefore, the author points out a suspicion that, in addition to bankruptcy law, other rules and regulations (for example, in the field of commercial and labor law) affect the initiation of liquidation proceedings as well as the ways of their operationalization. Much research dealing with the prediction of bankruptcy outcomes has been conducted on a sample of US companies, where the effectiveness of Chapter 11 has been analyzed. The research conducted by Barniv et al. can be emphasized as representative of this stream of research (Barniv et al., 2003). According to the results of their research, analysis of financial variables alone in predicting bankruptcy outcomes is not sufficient and the predictive power of the model is increased by including non-financial variables.

In the Republic of Croatia, Sajter (2010) surveyed a sample of insolvency practitioners. According to the research results, the initiation of insolvency proceedings is not certain or expected even in the conditions of long-term insolvency (over 1 year). The author points out that research in the field of insolvency in the Republic of Croatia is quite rare, especially if it takes into account the economic aspects of bankruptcy. Survey results indicate that the majority (89.6%) of insolvent companies in Croatia have been insolvent for more than 60 days, and 69.8% of them have been insolvent for over a year (Sajter, 2010, p. 141). Because insolvency is one of the mandatory criteria for initiating insolvency proceedings and delaying the initiation of this process is a criminal offense, it would be expected that a large number of proceedings would be initiated in Croatia on time, which is not the case in practice. Specifically, the results show that in the period from 2003 to 2008, the number of initiated proceedings decreased. The research results indicate disharmony between the theory or legal framework and the practice of Croatian companies because despite an apparent increase in the number of insolvent companies, they remain active on the market and do not open insolvency proceedings. Laitinen (2011) conducted a survey aimed at analyzing the survival of Finnish corporations that entered the process of reorganization or bankruptcy under the relevant regulation. Survey results indicate that a higher percentage of companies that applied for reorganization ultimately went bankrupt, while a large number of those that started insolvency proceedings survived. Moreover, according to the results, non-financial variables add more information value to the model in estimating survival than when only financial variables are used.

A study of the success of small business reorganization in Belgium was conducted by Leyman in 2012. He pointed out that there are significant differences in regulating the area of corporate reorganization, and in this context, it is useful to carry out comparative research to determine which countries have the highest survival rates, and to improve regulations in countries where the rate of survival is quite low (Leyman, 2012, p. 534). Pervan et al. (2018) and Tomas Žiković (2018) also emphasized the issue of late opening of bankruptcy proceedings in Croatia. In addition, Pervan et al. state that in Croatia, "the bankruptcy procedure starts at a very late stage of crisis, when a firm's liabilities are higher than assets" (Pervan et al., 2018, p. 269). In their research, the authors developed an alternative model for firm failure prediction – the financial distress model. According to the research results, the developed model outperformed traditional models in terms of better accuracy and prediction of firm failure status. Tomas Živković also warns about the late initiation of insolvency proceedings in Croatia. The author points out that "by comparing the number of companies that declared bankruptcy in Croatia in 2011 (4,878) and the number of insolvent companies in the same period (35,876 blocked companies), it can be concluded that only 13.6% of insolvent companies initiate insolvency proceedings, while the others continue to operate and spread insolvency throughout the system" (Tomas Živković, 2018, p. 6). Veganzones & Severin analyzed corporate failure prediction models using an in-depth review of 106 published scientific articles in this area. The authors point out that the analysis revealed certain agreements but also certain differences in terms of constructing a model for predicting bankruptcy. However, they conclude that financial variables are still primarily used in prediction models, while other variables are used as complements (Veganzones & Severin, 2021).

3.2 Analysis of the financial profile of failed companies

While the insolvency reasons that oblige directors or shareholders to initiate insolvency proceedings were described in the legal analysis within Section 2, it is also important to understand their underlying financial indicators, as well as the impact of those factors on the survival chances of the debtor. In this paper, empirical analysis consists of three steps. In the first step, liquidity in all pre-bankruptcy and bankruptcy proceedings in Croatia, Germany and Slovakia is compared to establish the level to which insolvency proceedings are initiated too late in systems that largely relied on criminal law sanctions in comparison to those which only recently introduced them. In the second step, we compare the results obtained for liquidity and timely initiation of insolvency proceedings with indicators that represent judicial efficiency in the observed countries. Finally, trends in liquidity over time in Slovakia were analyzed to determine how a change in the insolvency regulation (from 2017) influenced a change in the number of initiated procedures.

3.2.1 Comparative analysis of liquidity in pre-insolvency and insolvency proceedings

To be able to compare data from three countries, it was necessary to establish uniform terminology, as different countries use various terms to describe different procedures, which was also manifested by the incompatible use of those terms in the Amadeus database[5]. Thus, in order to include insolvency proceedings for the observed countries we focused on statuses in the Amadeus database:

- for Croatia, companies with statuses "In liquidation", "Bankruptcy" and "Rescue plan" were analyzed;
- for Germany, two categories were included: "Insolvency proceedings" and "Default of payments"; and
- for Slovakia, companies with statuses "In liquidation", "Bankruptcy" and "Insolvency proceedings" were analyzed.

After establishing uniform terminology, all companies with no data available for status opening and those where procedures were opened before 2013 were excluded from further analysis. This analysis covers the period from 2010 to 2019, and data on liquidity for the analyzed companies were obtained from the Amadeus database. In the first step, we focused on the opening date of insolvency status, and then sorted all data accordingly. In the next step, we analyzed data on liquidity in the year of the insolvency procedure opening, and one, two and three years before the insolvency procedure opening. It should be noted that it was necessary to exclude some companies from the sample due to a lack of data on liquidity. The research results are presented hereafter.

According to the research results presented in Table 1, obvious liquidity problems were detected in all analyzed countries. For example, in Croatia, three years before the procedure opening the liquidity ratio was less than 1 in 53.26% of cases, and this share of illiquid companies rose to 61.31% in the year of the procedure opening. Such results are in line with the findings of Sajter (2010, p. 133), who states that it is not necessarily expected to start the procedure even in the case of long-term insolvency (over 1 year). The issue of a late opening of bankruptcy proceedings in Croatia is also emphasized by Pervan et al. (2018) and Tomas Žiković (2018).

Slovakian companies are also facing significant illiquidity issues as 45.90% of them have a current ratio of less than one three years before the procedure opening. In the year of the procedure opening, even 60.85% of companies have liquidity issues. This confirms the assumption that companies ignore the warning signs of crisis and start the reorganization processes too late, which compromises the outcome of the reorganization process. As for the German sample, the results indicate that about 36.92% of companies have liquidity problems three years before the procedure opening and this ratio rises to 47.47% in the year of the procedure opening. This indicates that German companies respond to signs of crises earlier in comparison to Croatian and Slovakian companies.

5 https://amadeus.bvdinfo.com/version-20211122/Home.serv?product=amadeusneo

Table 1 Comparative analysis of liquidity in initiated pre-insolvency and insolvency proceedings

	Croatia		Slovakia		Germany	
	Number	**%**	**Number**	**%**	**Number**	**%**
Procedures year T	1.039		567		99	
Procedures year T-1	2.603		1.481		229	
Procedures year T-2	2.946		1.439		984	
Procedures year T-3	2.717		1.377		1.219	
Current ratio < 1 year T	637	61.31%	345	60.85%	47	47.47%
Current ratio < 1 year T-1	1.574	60.47%	758	51.18%	113	49.34%
Current ratio < 1 year T-2	1.612	54.72%	683	47.46%	380	38.62%
Current ratio < 1 year T-3	1.447	53.26%	632	45.90%	450	36.92%

Source: Authors' calculations

To test the differences in liquidity among companies that initiated pre-insolvency and insolvency proceedings in the analyzed years (year T, year T-1, year T-2 and year T-3), the authors performed the one-way ANOVA because the analysis of differences in liquidity between three different samples (countries) was conducted. The results indicated that all the observed differences were significant at the 5% significance level (p-value = 0.0001).

Overall, it can be concluded that the research assumptions have been confirmed and that, on average, insolvency proceedings in Croatia and Slovakia are initiated too late, and that companies continue to operate on the market even though mandatory insolvency reasons exist. Namely, the results of the research indicate that the main trigger for insolvency proceedings – insolvency - is present in companies even three years before the initiation of the proceedings, which suggests that the companies accumulate losses for years and ignore the obvious signs of financial instability.

3.2.2 Comparative analysis of liquidity data in relation to government effectiveness and the rule of law

Data on liquidity presented in Table 1 indicate that Slovakian companies perform slightly better than Croatian companies. However, the results are still far behind those concerning companies in Germany. For example, in the year of initiating a bankruptcy or pre-bankruptcy procedure, 47.47% of German companies have liquidity issues, while this ratio rises up to 60.85% for the Slovakian sample. The results of the performed liquidity analysis of opened bankruptcy or pre-bankruptcy procedures show that insolvency proceedings in Croatia and Slovakia are, on average, initiated too late and that differences among the observed countries exist although all the observed countries have a similar legal framework in the context of criminal sanctions for delaying the initiation of insolvency proceedings. For example, Croatia and Germany have the same predicted sanction in terms of a prison sentence of up to one year or a fine. In Slovakia, insolvency laws were changed during the period covered in our analysis, but the results are still not in line with the stricter criminal sanctions for late initiations of insolvency proceedings that have been introduced in recent years. As the design of the national law alone cannot explain the detected disparities in liquidity, the next logical step is to look into indicators that show the actual application and enforcement of the law in the countries concerned.

Such an approach is in line with Couwenberg (2001) and Tomas Žiković (2018), who pointed out that the operationalization of bankruptcy laws and the actual application and enforcement of the law may cause differences in the initiation of insolvency proceedings. Thus, not only the insolvency framework but also the effective judicial system affects the timely initiation of insolvency procedures. For this reason, we focused on worldwide governance indicators related to government effectiveness and the rule of law as proxies for the efficiency of the judicial system. Government effectiveness shows the perceptions of the quality of public and civil services, as well as the perceived degree of its independence from political pressures. The rule of law

indicator points to the "perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" (World Bank, 2022).

As presented in tables 2 and 3, among the analyzed countries, both analyzed indicators achieve the highest scores in Germany. The value of these indicators is significantly lower in Slovakia, while Croatia achieves the lowest value in both groups. For example, the average value for the government effectiveness score in Germany for the period 2013-2019 is 93.70, while this score drops to 75.05 for Slovakia. For the same period, the average value of the government effectiveness score in Croatia is 70.66.

Table 2 Government effectiveness in the period 2013-2019

Country/Year	2013	2014	2015	2016	2017	2018	2019	Average
Croatia	71.09	73.08	72.12	69.71	72.12	69.23	67.31	70.66
Slovakia	73.93	75.00	75.00	76.92	75.00	75.48	74.04	75.05
Germany	92.42	94.71	93.75	94.23	94.23	93.27	93.27	93.70

Source: The World Bank, Worldwide governance indicators, retrieved from: https://databank.worldbank.org/reports.aspx?source=worldwide-governance-indicators#

Table 3 Rule of law in the period 2013-2019

Country/Year	2013	2014	2015	2016	2017	2018	2019	Average
Croatia	58.22	63.46	61.06	63.46	62.50	62.98	63.46	62.16
Slovakia	64.32	69.23	68.27	72.60	69.71	69.71	70.19	69.15
Germany	92.02	93.75	93.27	91.83	91.35	91.35	92.31	92.27

Source: The World Bank, Worldwide governance indicators, retrieved from: https://databank.worldbank.org/reports.aspx?source=worldwide-governance-indicators#

The results presented above show that there are differences in indicators related to government effectiveness and the rule of law among the observed countries. These differences could explain the detected disparities in the share of illiquid companies in the samples. The results lead to the conclusion that it is not just the intensity of the sanction but also the likelihood of being convicted that strongly influences the decision-making process of individuals in the context of starting liquidation proceedings in the observed countries. Therefore, we can conclude that the results confirm that the way the laws are executed plays an important role in the prevention of late insolvencies.

3.2.3 Cross-time analysis of liquidity in pre-bankruptcy and bankruptcy procedures for the Slovakian sample

In this part of the study, we present the results of a cross-time analysis of liquidity for a sample of Slovakian companies that initiated procedures in the period between 2013 and 2019. A more detailed analysis of the Slovakian sample was performed because Slovakia introduced criminal law penalties for late initiations of insolvency proceedings in 2017, so it was interesting to analyze how this influenced the number of initiated procedures in this country. We assume that the introduction of criminal law penalties in Slovakia should increase the number of timely insolvency procedures, but only up to a level proportionate to the efficiency of the judicial system in this country. The results are presented in the following table.

Table 4 Liquidity analysis for the Slovakian sample

Year 2019	Number	%
Procedures year T	160	
Current ratio < 1 year T	60	37.50%
Year 2018	Number	
Procedures year T	188	
Current ratio < 1 year T	134	71.28%
Year 2017	Number	
Procedures year T	70	
Current ratio < 1 year T	43	61.43%
Year 2016	Number	
Procedures year T	13	
Current ratio < 1 year T	6	46.15%
Year 2015	Number	%
Procedures year T	95	
Current ratio < 1 year T	71	74.74%
Year 2014	Number	%
Procedures year T	28	
Current ratio < 1 year T	21	75.00%
Year 2013	Number	%
Procedures year T	16	
Current ratio < 1 year T	10	76.92%
TOTAL	Number	%
Procedures year T	567	
Current ratio < 1 year T	345	60.85%

Source: Authors' calculations

From the data given above, it can be noted that the number of initiated procedures increased significantly in 2017, which corresponds to the introduction of criminal law sanctions. This implies that criminal law sanctions have a positive effect on the prevention of late insolvencies in the Slovakian sample. It has long been proven that the severity and likelihood of criminal law penalties applied to individuals have a strong influence on their behavior (Becker, 1968). The results show that in 2017, the year when criminal law sanctions for the late initiation of insolvency proceedings were introduced in Slovakia, the number of initiated procedures increased to 70. The effect was more noticeable with a one-year lag, i.e., in 2018, when as many as 188 procedures were initiated, which is a significant increase in comparison to previous years (70 and 13 procedures in 2017 and 2016, respectively). This implies that criminal law sanctions have a positive effect on the initiation of bankruptcy and pre-bankruptcy procedures. The average share of illiquid companies in the sample in the years after introducing criminal law sanctions (2018-2019) was 54.39%. In comparison with the average share of 68.06% in years before these measures (2013-2016), it can also be concluded that the introduction of these criminal law sanctions had a positive effect on the timely initiation of insolvency proceedings. Thus, the results clearly show that criminal law sanctions positively influence the initiation of timely insolvency proceedings. But, as shown above, only up to a ceiling determined by the strength of institu-

tions and the rule of law in a country. Even the fact that the Slovakian system introduced more severe sanctions could not help to reach the level of efficiency achieved in modern western countries like Germany. Criminal law sanctions therefore clearly have a place in insolvency law. However, for them to have optimal effects, other elements concerning the application of law and the judicial environment must be improved.

4. Conclusion

In this paper, the authors performed a comprehensive analysis of insolvency proceedings in Germany, Croatia and Slovakia. The main goal of the research was to examine the assumption that insolvency proceedings are opened too late in the observed countries and to explain this issue. The research results have been confirmed and insolvency proceedings in Croatia and Slovakia are, on average, initiated too late. According to the results, companies continue to perform their business activities even though mandatory insolvency reasons exist. The results of the conducted analysis show that the main trigger for insolvency proceedings - insolvency, is present in companies even three years before the initiation of the proceedings, which indicates that companies accumulate losses for years and take no notice of obvious signs of financial crisis instability. Furthermore, the results of the conducted analysis indicate that criminal law sanctions against the late initiation of insolvency proceedings can have preventive effects. These sanctions, however, can increase the number of timely insolvency proceedings only to a certain level as their effectiveness is limited by the strength of institutions and their consistent application.

This, in conclusion, means that criminal law sanctions are an effective short-term tool, but that criminal law sanctions in the long term cannot substitute for an improvement to the rule of law and the strength of institutions in a specific country. As the strength of institutions is especially relevant to the coherent application of the law, and thus the likelihood for perpetrators to be convicted, the results could also indicate that jurisdictions such as Croatia and Slovakia do not apply criminal law sanctions equally to all perpetrators. Future research should therefore especially focus on the economic impact of the level of the arbitrariness of the application of criminal law penalties in insolvency law. Furthermore, difficulties in establishing uniform terminology should be pointed out as research limitations because different countries use different terms to describe different procedures. Finally, the sample was reduced due to a lack of data on status opening or data on the liquidity ratio in the year of analysis.

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