Investor protection and stock market development. Empirical approach on the European Union case

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Abstract

A fundamental objective of stock market regulation is investor protection, which influences the stability and the degree of development of capital markets. We use eleven years (2006-2016) of panel data from the World Bank, on the evolution of minority shareholders' protection. This paper aims at understanding the connection between regulation and the development of capital markets, both for developed and emerging European Union countries. The results are consistent with some of the results from empirical research in law, demonstrating a positive link between investor protection and stock market development during the analyzed period, after controlling for other drivers of stock market development, such as GDP growth and level of taxation. The results outline the importance of stock market regulation, making clear that minority shareholder regulation and its enforcement should be further improved in the European Union member states.

Keywords: minority shareholder protection; regulation; stock market development; European Union; GMM system

JEL Classification: K20, K22, K42

1. Introduction

The enhancement of the protection of minority shareholders, alongside with the improvement of corporate governance of listed companies represent one of the premises of development of domestic stock markets. Investor protection is one of the main principles that is guided by the stock market regulation and it presumes mainly the existence of the following rights: economic rights, control rights, information rights, litigation rights and equality rights.

The position of a minority shareholder in a company entails a number of risks, given the individual interest of the controlling shareholders in obtaining the highest personal benefits and not respecting the *affectio societatis* principle, acting for the good or the common interest of the company. In some countries, weak investor protection regulations or poor enforcement are often mentioned in the

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literature as one of the reasons why companies are reluctant to issue stocks to raise funding, and potential shareholders are reluctant to buy them, leading to less developed stock markets in these countries.

The empirical comparative law literature that has investigated the nexus between minority shareholder protection and stock market development is quite recent, growing systematically in the last two decades³, alongside the increasing role of stock exchanges in national financial systems. Legal data coding, also known as "leximetric" methodology made easier comparative analyses of legal systems and social or economic impact. Leximetrics represents the starting point of the performed international quantitative analysis, by making available composite legal variables and providing a mean of measuring cross-national variations in regulation.

One of the priorities of the European Union Commission was the creation of the capital markets union (CMU), as a manner of deepening the Single Market, by increasing the depth and liquidity of the European capital markets and facilitating the access of companies to the best-suited financing option on European public markets. The convergence⁵ of investor protection supervision and enforcement⁶ is seen as necessary in the Green Paper of the European Commission regarding the creation of a Capital Markets Union, in order to avoid regulatory arbitrage and discouragement of companies looking for finance in other member states⁷. Annual reports from the World Bank show that in the last decade, European Union member states have embarked on regulatory reforms concerning the protection of minority shareholders, which were seen as a major barrier for developing a business abroad.

The objective of our empirical approach is to investigate quantitatively if regulatory changes related to minority shareholder protection improved the growth of domestic stock markets in the member states of European Union. Our study brings the following contributions to the existing literature on this subject: (1) a focus on the specific case of the European Union countries; (2) the method of computing the variable of interest (strength of minority shareholder protection) using historical data from Doing Business annual reports and (3), the first use, to

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³ See Holger Spamann, *Empirical Comparative Law*. "Annual Review of Law and Social Science". 11: 131-153, 2015, p. 3.

⁴ See Priya Lele, Mathias Siems, *Shareholder Protection – A Leximetric Approach*. "Journal of Corporate Law Studies", 7:17-50, 2007.

⁵ Convergence, defined as a dynamic and systemic integrative phenomenon, assumes the functional hypothesis of coming together region-wise in order to achieve common economic and social targets, which is a characteristic feature of the accelerated integration into the EU of the economies in Europe – see Gheorghe Săvoiu, *European Integration through Economic Convergence*, "Amfiteatru Economic", no. 18(42)/2016, p. 237.

⁶ At the level of the European Union countries, the European Securities and Markets Authorities (ESMA) is entitled to ensure the investor protection and promote stable stock markets.

⁷ See European Central Bank, *Building a Capital Markets Union – Eurosystem contribution to the European Commission's Green Paper*, 2015. The document is available online at: https://www.ecb.europa.eu/pub/pdf/other/150521_eurosystem_contribution_to_green_paper_building_a_cmuen.pdf [Last accessed: 8/11/2018].

our best of knowledge of dynamic panel-data estimation (GMM) for estimating the connection between investor protection and stock market development in the European Union.

2. Theoretical background

2.1 Minority shareholder protection in the European Union

The most comprehensive study comparing minority shareholder protection in all the European Union member states is, to our knowledge, the one realized by TGS Baltic team⁸ for the European Commission DG Justice and Consumers. The TGS Baltic team study assessed the EU's approach to policies on minority shareholder protection. Lawyers and legal experts from all EU countries, as well as stakeholders were provided questionnaires in order to assess the importance, ease of exercise and adequacy of minority shareholder rights in the legal frameworks of their countries⁹. Countries were divided into three groups according to their juridical legal origin: common-law (Ireland, Cyrus, Malta and United Kingdom), civil law (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, France, Germany, Greece, Hungary, Italy, Latvia. Lithuania, Luxembourg, Netherlands, Poland, Romania, Slovakia, Slovenia, Spain) and Scandinavian (Nordic) law (Denmark, Sweden and Finland). The study concludes that although there are some similarities between EU states for example that all legal frameworks are in such a manner designed to ensure that shareholders are not liable to unfair or abusive treatment or balancing rights with the importance of contribution in the company, there are also significant differences in regards to the regulation and enforcement of the rights of minority shareholders. This is probably due to the fact "hard" and "soft" laws are understood and applied in a different way in each member state.

The effort realized by these authors was significant, considering that not all EU countries benefited from a similar amount of relevant case law, had different levels of corporate governance, and placed different amounts of importance of the stock market. There were also between country differences in the ownership structure for companies included in the comparative analysis ¹⁰.

A more detailed picture of the specific minority shareholder rights investigated in their research is in the below table (Table 1).

⁸ See Gintautas Bartkus, Daina Belicka, Mindaugas Civilka, Pierre H. Conac, Christoph Teichmann, Tineke Lambooy, Brenda Hannigan, *Study on minority shareholders protection*, Publication Office of the European Union, 2018 The document is available online at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3225130 [Last accessed: 8/11/2018].

⁹ *Ibidem*, p. 24.

¹⁰ See Gintautas Bartkus, Daina Belicka, Mindaugas Civilka, Pierre H. Conac, Christoph Teichmann, Tineke Lambooy, Brenda Hannigan, op. cit., p. 24.

Table 1. Rights of the minority shareholders by category

Type of right	Sub-components				
Economic rights	Rights related to dividends and the distribution of assets				
	Right related to exiting the company Rights related to new issue or transfer of shares				
Control rights	Rights related to the management/supervisory board of the				
	company				
	Rights related to General Meeting				
	Right to block alterations of the company's constitution				
Information rights	Rights related to access to information				
Litigation rights	Rights related to enforcement mechanisms				
Equality rights	Recognition of the principle "one share, one vote"				
Equality Highlis	recognition of the principle one share, one vote				

Source: Bartkus et al.¹¹

We sum up just a few of the most interesting conclusions drawn up from the Bartkus et al.¹² research below, that are useful in describing a general picture of the minority shareholders' rights in the European Union countries:

- Generally speaking, **the exercise of economic rights** that have been transposed from EU directives (sell-outs, squeeze-out, mandatory takeover bids, etc.) were assessed by the respondents in a more positive light; minority shareholders' protection, according to the assessment of the respondents, depends not only on the legal framework characteristic to each country, but also to the extent to which a company allows for freedom of contract, according to the law and also to the shareholder's ability of negotiating some terms, of their contractual power¹³;
- Regarding the **control right**, it is worth mentioning the suggestion of many national experts of having a statutory rule that explicitly impose a minimum percentage of independent directors as well as the fact that only in half of the member states is the management/ supervisory board required to take into consideration minority shareholders' interests and even for the countries where this obligation, the enforcement is difficult, due to the fact that there is no clear explanation of the way this obligation should be carried out and whether is should be an assessed or enforced obligation¹⁴;

¹² Ibidem.

¹¹ Ibidem.

¹³ *Ibidem*, p. 81.

¹⁴ *Ibidem*, p. 148.

- Regarding the minority shareholders' **access to information** right, when this right is exercised for information outside the General meetings, it should be ensured to all shareholders by national transposing requirements of European directives¹⁵, the legal experts mention the fact that this sort of information is limited by a number of requirements, respectively: to shareholders of a certain importance in the company, conditoned by some attendance requirements, by the approval of such disclosure by the corporate management or by a non-disclosure commitment¹⁶;
- Litigation rights are not specific to the minority shareholders, but to all shareholders of the company. Some specific remedies such as the specific investigation of the activities conducted by the company are conditioned in the majority of the countries on meeting a certain threshold; in most EU countries, the minority shareholders have a legal standing to challenge the resolutions/decisions taken in the general meetings if those decisions are directly affecting their rights;
- Although most legal experts expressed their agreement with the existence of adequate **enforcement mechanisms** concerning the protection of minority shareholders, they also expressed concerns regarding barriers exercising these mechanisms such as: duration of judicial processes, litigation costs and burden of proof that in the majority of cases, relies on the minority shareholder¹⁷.

2.2 Review of the empirical comparative law research

Beginning with the seminal paper of La Porta et al.¹⁸, the nexus between investor protection and stock market development or performance has been a part of empirical research in law and finance, which, according to Spamann¹⁹, represents the largest literature in empirical comparative law. La Porta et al.²⁰ builds and computes the anti-director rights index, for a sample of 49 countries, and proves that this index positively impacts some equity market indicators, such

See for example, Directive 2013/50/EU of the European Parliament and of the Council of 22 October 2013 amending Directive 2004/109/EC of the European Parliament and of the Council on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market; Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC.

¹⁶ See Gintautas Bartkus, Daina Belicka, Mindaugas Civilka, Pierre H. Conac, Christoph Teichmann, Tineke Lambooy, Brenda Hannigan, op. cit., p. 169.

¹⁷ *Ibidem*, p. 191.

¹⁸ See R Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, Robert W. Vishny, Law and Finance, "Journal of Political Economy", 106: 1113-55, 1998.

¹⁹ Ibidem.

²⁰ Ibidem.

as market capitalization and ownership dispersion. The authors point to the fact that countries with more efficient legal systems are able to grow more rapidly because they rely more on external finance than others. Follow-up research refined the results and proposed new indexes related to securities laws. Also, their results had put into doubt the hypothesis that law influences finance and rather suggested that causality ran in both directions. While not denying the fact that law influences general economic outcomes, the effects of law on financial development are contradictory, and it is often considered that the rapid growth of stock markets in the nineteenth century was what led to the legal background for shareholders' rights²¹.

Djankov et al.²² propose a new methodology, with the help of Lex Mundi law firms, in order to quantify the legal protection that minority shareholders hold against expropriation by those who exercise control in a company, respectively the corporate insiders (regardless of their position within the company, of managers and/or controlling shareholders). The anti-self-dealing index was designed for the case of 72 countries, according to the 2003 applicable legal rules in order to depict the situations where corporate insiders act in order to direct corporate wealth to themselves, and not acting upon the principle *affectio societatis*.

Fagernas et al.²³ embark in a research project, with the scope of compiling a novel time series database in which there are used 60 legal indicators for four developed economies (France, Germany, UK and US) in order to reassess the claim that shareholder protection is higher in common-law countries rather than in civil-law countries. They conclude that the positions of the country regarding shareholder protection change over time (between 1976 and 2005), and so the assumption does not hold generally. They provide empirical evidence that civil law countries (such as France) surpassed common-law countries (such as US) in shareholder protection by the end of the analysed period. Different scholars have used the legal families category to argument the major differences that arise in terms of legal institutions, implying that common law countries have a less interventionist regulation than civil law countries do²⁴.

The empirical studies performed so far pose to the public debate an important question regarding the positive long-run nature relationship between shareholders' protection and stock market development. Indeed, the strengthening

²¹ See Simon Deakin, Prabirjit Sarkar, Ajit Singh, An End to Consensus? The Selective impact of Corporate Law Reform on Financial Development. in M. Aoki, K. Binmore, S. Deakin and H. Gintis (eds.), Complexity and Institutions: Markets, Norms and Corporations. New York, NY: Palgrave Macmillan, 2012, p.5.

²² See Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silvanes, Andrei Schleifer, *The law and economics of self-dealing*, "Journal of Financial Economics", 88(3): 430-465, 2008.

²³ See Sonja Fagernäs, Prabirjit Sarkar, Ajit Singh, Legal Origin, Shareholder Protection and the Stock Market: New Challenges from Time Series Analysis. in B. Yurtoglu and K. Gugler (eds.) *The Economics of Corporate Governance and Mergers*. Cheltenham, Edward Elgar, 2008.

²⁴ See Helen Anderson, Michelle Welsh, Ian Ramsay, Peter Gahan, *The Evolution of Shareholder and Creditor Protection in Australia: An International Comparison*, "International and Comparative Law Quarterly". 61: 171-207, 2012, p. 4.

of regulation regarding shareholder and creditor rights as main driver of financial development has been the cornerstone of many policy endevours and national law reforms²⁵. The recent empirical results, however, show evidence of a reverse causality, with the stock market enhancing demand for shareholder rights, especially in developing economies.

Deakin et al.²⁶, in one of the research papers realized at the University of Cambridge, use novel "leximetric" techniques in order to measure legal changes in the period 1990-2013 and also Vector-Autoregressive (VAR), Vector Auto-Correction (VEC) and Granger causality tests in order to systematically assess if the stock market development was caused by or caused changes in the shareholder protection law. Their results were consistent with the ones obtained in the previous empirical work that claimed that financial development preceded legal changes²⁷. They also find a positive relationship between regulatory changes in minority shareholder protection and stock market development (measured as market capitalization, respectively total value traded), defined though as "weak and equivocal"²⁸. They find a negative relationship between regulatory changes and the number of listed firms on the stock exchanges, explaining this result through the immediate negative reaction that managers often have when regulation gets tougher, implying that strengthening investor protection might trigger the de-listing of companies as immediate response by managers²⁹.

3. Empirical background

3.1 Data and methodology

Unlike previous empirical comparative law research that approached the connection between investor protection and stock market development, we use data provided by Doing Business annual reports³⁰ for the minority shareholder protection index and the World Development Indicators³¹ database for data regarding market capitalization and for some control variables (such as foreign direct investment and GDP growth). Data regarding tax burden was obtained from The Heritage Foundation³². The period of analysis is 2006-2016. In order to depict

²⁵ See Simon Deakin, Prabirjit Sarkar, Ajit Singh, op. cit., p. 5.

²⁶ See Simon Deakin, Prabirjit Sarkar, Mathias Siems, Is there a relationship between shareholder protection and stock market development?, Legal Studies Research, Paper no. 9/2018, University of Cambridge, Faculty of Law, 2018.

²⁷ *Ibidem*, p. 28.

²⁸ Ibidem.

²⁹ *Ibidem*, p. 23.

³⁰ See World Bank, Doing Business - Data catalog, Washington, DC: World Bank. The document is available online at: https://datacatalog.worldbank.org/dataset/doing-business [Last accessed: 6/11/2018].

³¹ See World Bank, World Development Indicators, 1960-2016. The document is available online at: http://data.worldbank.org/data-catalog/world-development-indicators [Last accessed: 6/11/2018].

³² The Heritage Foundation - Dataset. The document is availbale online at: https://www.heritage.org /index/ [Last accessed: 6/11/2018].

the strength of minority investor protection index, we used the simple average of the extent of firm disclosure, extent of director liability and ease of shareholder suits indices, for the whole period of analysis³³. A more detailed description of the variable, as computed by the World Bank, is provided in Appendix 1.

We started the analysis with a pooled OLS approach where we only controlled for investor protection and tax burden. The estimated model appeared to have endogeneity issues according to the Hausman Wu test for endogeneity, presented in Appendix 2. The test compares two models: the consistent estimator (GMM) and efficient estimator (POLS). We rejected the null hypothesis that the difference in coefficients is not systematic; therefore, we concluded that POLS model is not consistent and employed a GMM approach.

We estimated four different GMM models, starting from a simple one which controlled only for investor protection index. Then, we added a tax burden index (TB), the GDP growth rate (GDP) and foreign direct investment (FDI) as a share of GDP. The general functional form of the models can be presented as:

$$MK_{it} = c_i + \rho MK_{it-1} + \gamma IP_{it} + \sum_k \beta_k X_{it}^k + \varepsilon_{it}$$
 (1)

where, MK_{it} is the stock market capitalization in country i, in time period t, measured relative to GDP, MK_{it-1} is a lagged value of stock market capitalization, IP_{it} is the investor protection index, which is the variable of interest, and varies between 0 and 10, and X_{it}^k , contains all the control variables we used, which are macroeconomic determinants of stock market development recognized in the previous literature (foreign direct investment, GDP growth, tax burden).

The GMM models are used for the cases when right-hand variables are correlated with previous and probably current values of the error terms, and have individual fixed effects, implying heteroskedasticity and autocorrelation within individual units' errors³⁴. So, the models were estimated using Arellano-Bover/Blundell-Bond linear dynamic panel-data estimation, where we used as instruments lags of market capitalization, GDP growth rate and FDI. The model is a linear dynamic panel-data model where the unobserved panel-level effects are correlated with the lags of the dependent variable.

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³³ The methodology of computing the variable "Strength of investor protection index" has changed during the analysed period of time; In 2015, World Bank added one additional component, namely "Shareholder governance index", when computing the "Strength of investor protection index"; In order to maintain a unitary methodology and consider also the values provided after 2014, we have used for the last two years of analysis the values provided for the variable "Extent of conflict of interest regulation index", which is computed in a similar way as the variable "Strength of investor protection index" prior to 2015.

³⁴ See Christopher F. Baum, *Dynamic panel data estimators*, Boston College, 2014. The document is available online at: http://www.bc.edu/EC-C/S2013/823/EC823.S2013.nn05.slides.pdf [Last accessed: 6/11/2018].

3.2 Results

The estimation summary is presented in Table 2. The impact of investor protection significantly changes when we add GDP growth and FDI, meaning that models 1 and 2 have serious omitted variable bias. Investor protection becomes insignificant in model 3 but is significant again in model 4. Other than this, the estimated coefficients do not vary much between models 3 and 4.

Table 2. GMM estimation outputs

	Model 1	Model 2	Model 3	Model 4
Investor protection	7.2430***	6.6396***	2.3353	3.2537**
	(2.34)	(2.29)	(1.74)	(1.61)
Tax burden		-0.4324**	-0.4004***	-0.3417***
		(0.20)	(0.14)	(0.13)
GDP growth			1.1434***	1.0328***
			(0.17)	(0.17)
FDI				-0.0239
				(0.02)
L.MK	0.8538***	0.7994***	0.8065***	0.8230***
	(0.03)	(0.04)	(0.03)	(0.03)
Constant	-35.1630**	-0.5591	20.1949	10.6627
	(13.87)	(20.70)	(14.76)	(12.83)
N	277	277	277	277

^{*} p<0.10, **, p<0.05 and *** p<0.01 Standard errors are in parenthesis

Source: authors' calculations

Therefore, we can consider Model 4 as the best one. According to the results, a one-unit increase in the investor protection index increases the share of market capitalization in GDP by about 3.3 percentage points. Meanwhile, a one-unit increase in the tax burden index decreases market capitalization only by about 0.34 percentage points. Additionally, increases in the GDP growth rate increase market capitalization by about 1 percentage point.

4. Conclusions

The interdisciplinary theoretical connection between law and finance lies in the claim that the quality of regulation and of regulatory institutions foster the development of financial markets, leading further to the growth of the economies. The more recent empirical papers point out to the reverse causality between regulation and stock market development, arguing that the rapid pace of development, the changes in the structure of the financial markets, as well as the

rise of a new market-oriented generation of investors, in the nineteenth century, generated corporate law changes.

Given the information provided by World Bank, which shows a clear picture of progress regarding minority shareholder protection regulation in all 28 European Union member states over the analysed period of time (2006-2016), we wanted to check whether this regulatory dynamic generated development in the European domestic stock markets or not.

Our results indicate that there is a positive connection between minority shareholder protection and stock market development, proxied by the level of market capitalization, one of the most common indicators of development used in the previous empirical research. The positive connection remains valid even after controlling for several other determinants of stock market development, such as GDP growth, FDI or level of taxation. This finding is consistent with other empirical studies that have found a positive connection between the two,³⁵ although our results are stronger from a statistical point of view. The results are in line with the claim that increased shareholder protection regulation creates incentives for a larger participation in the stock market, for both investors and listed companies, and contributes to a lower concentration of ownership and control, leading to a deepening of the domestic stock market by decreasing agency costs and the cost of raised capital. If that is so, European regulators should continue their efforts in ensuring adequate minority shareholder protection regulations, as well as enforcement of these regulation.

However, we cannot rule out the possibility that financial market development, in turn, triggered the regulatory changes in minority shareholder protection. This connection should be further investigated, in the case of the European Union countries, using specific causality econometric tools, like Granger analysis.

³⁵ See Simon Deakin, Prabirjit Sarkar, Mathias Siems, op.cit.

Appendix 1. Minority shareholder protection index. Computation methodology used by World Bank in its "Doing Business" annual reports

PORTS (2006-2014)					
• 1 (0.10)					
re index (0-10)					
related party transactions					
bility index (0–10)					
ectors for self-dealing					
suits index (0–10)					
locuments before and during litigation					
ROTECTION INDEX (0-10)					
the extent of disclosure, extent					
f shareholder suits indices					
DOING BUSINES REPORTS (2015-2016)					
Extent of shareholder rights index (0-10)					
Shareholders' rights and role in major					
corporate					
decisions					
Extent of ownership and control index (0-					
10)					
Governance safeguards protecting					
shareholders					
from undue board control and entrenchment					
Extent of corporate transparency index (0–10)					
Corporate transparency on significant owners,					
executive compensation, annual meetings and					
audits					
Extent of shareholder governance index (0-					
10)					
- Simple average of the extent of shareholder					
- Simple average of the extent of shareholder rights, extent of ownership and control and extent of					

STRENGTH OF MINORITY INVESTOR PROTECTION INDEX (0-10)

corporate transparency indices

- computed as a simple average of the extent of conflict of interest regulation and extent of shareholder governance indices

Source: adapted by author from Doing Business annual reports (World Bank)

Appendix 2. Hausman Wu test for endogeneity

	Coefficients					
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))		
	GMM_2	GLS	Difference	S.E.		
IP TB	6.639561 -0.43239	-0.16734 -1.6448	6.806898 1.21241	1.410224 0.143379		

b = consistent under Ho and Ha; obtained from xtdpdsys B = inconsistent under Ha, efficient under Ho; obtained from regress

Test: Ho: difference in coefficients not systematic

 $chi2(2) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 84.63$

Prob>chi2 = 0.0000

Source: authors' calculations

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