



# INFLUENCE OF FINANCIAL REGULATIONS ON EARLY-STAGE ENTREPRENEURIAL ACTIVITY

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## Abstract:

Government efforts to provide better business environment in terms of high-quality regulations and business laws should facilitate the development of entrepreneurial activity in different ways. There is an emerging body of literature that supports this relationship. The aim of the paper is to examine how different kinds of financial regulations, such as government procedures for getting credit, paying taxes and resolving insolvency, are related to the formation of young businesses. The sample includes World Bank's Doing Business and Global Entrepreneurship Monitor data for 50 economies within the period of two years. The analysis has confirmed that financial regulations can have a significant impact on the early-stage entrepreneurial activity rate, but this relationship should not be a priori defined as generally positive.

## Keywords:

entrepreneurship, financial policy, doing business, regulations.

## INTRODUCTION

It is estimated that more than 90% of jobs in developing economies is created through private sector, small and medium-sized enterprises and entrepreneurship (Stampini *et al.* 2011). Governments tailor their policies to facilitate and support sound business environment, characterized by greater business opportunities, jobs creation, increasing investments and productivity. Although most of these policies still focus on macroeconomic factors, there is an emerging body of literature that calls for more attention to the matter of quality of regulations, laws and institutional support, which impacts business life on a daily basis (Alesina *et al.* 2005; Klaper *et al.* 2009; Fisman & Sarria-Allende, 2010; Perotti & Volpin, 2005).

Well-designed business policies and regulations should enable development of private sector and business network. On the other hand, poorly designed regulations that should support and protect economic activity and business operations, can become a major obstacle in this process. This scenario can easily become reality, having in mind the dynamics and challenging nature of the existing business environment where regulations and policies must continually improve and adapt to new business conditions. An increasing use of information and communication technology in business processes is just one of the reasons for adaptation of business regulations.

The primary goal of the paper is to investigate the link between the observed level of financial regulation and new firm formation. The study included 50 countries observed during a period of two years and it suggests that the association between the financial regulation of starting a business and entrepreneurship is by no means as clear as implied in the existing literature. However, it does find that financial regulations can have a significant impact on early-stage entrepreneurial activity. The overall conclusion is that there is a need for a serious review policy in this area, with better and larger datasets as a key requirement.

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## THEORETICAL BACKGROUND

In order to examine the indicators of financial regulation, this research focuses on three indicators measured by the World Bank's Doing Business project: Getting credit, Paying taxes and Resolving insolvency. The selection of indicators of financial regulations was based on the insights from the extensive research literature (such as Djankov *et al.* 2007; Djankov *et al.* 2008; Djankov *et al.* 2010), and some of those sources and their findings are presented in the following part.

Doing business project assesses credit registries, legal rights of borrowers in secured transactions and bankruptcy laws, as systems that can have impact on access to finance and its allocation. Djankov *et al.* 2007 state that these systems function best together. Creditors assess the creditworthiness of clients based on the information provided by credit bureaus, and legal rights can make easier the use of collateral and enforce claims in the event of default. Insolvency regimes and creditor rights can significantly improve commerce and economic growth, as they represent the basis of the sound investment ambience (World Bank, 2011).

Infrastructure of the financial market, which includes courts, credit-collateral registries, and creditor and insolvency laws, directly provides easier access to credit, which is one of the main obstacles identified by businesses worldwide. Strong collateral laws supported by efficient credit information system can help to overcome this problem. A recent study performed on a sample of 12 economies has confirmed that improving the collateral law may have positive effects on the volume of bank lending (Haselmann *et al.* 2010).

Increase of information sharing through credit registries should lead to lower bank risks and higher bank profitability. In addition, the existence of public/private credit registries and stronger creditor rights is associated with higher ratio of private credit to GDP (Djankov *et al.* 2007; Houston *et al.* 2010). Several studies conducted in India, Brazil, Columbia and Belgium pointed out to debt recovery and exit processes as the key towards determining credit conditions (Visaria, 2009; Funchal, 2008; Gine & Love, 2008; Dewaelheyns & Van Hulle, 2008).

Tax policy is another significant aspect of financial regulations. When it comes to paying taxes, it seems that there is a close connection between administrative burden, tax rates and investments. Many economies have concurrently reduced administrative burden and tax rates to stimulate the economic activity. The data on total tax rates and investments examined in the last decade indicate that the reduction of tax rate by one percent leads to an increase of investment by 1% of GDP (Eifert, 2009).

As a result of the financial crisis, academics, practitioners and policy makers highlight the importance of efficient insolvency administration in recovering local economies, while also discussing different approaches to bankruptcy reform

implementation. The literature elaborated on different effects that efficient insolvency laws and restructuring framework can have on business, such as: assistance in restructuring and survival of private entities (Rizzo, 2011), strengthened secured creditors' rights, and reduction in the cost of debt (De Araujo, 2011).

## METHODOLOGY

The data used come from two primary sources: Doing Business (DB) project and Global Entrepreneurship Monitor (GEM) study. The World's Bank DB project delivers annual reports and quantitative indicators on business regulations for 189 economies. The goal of these reports is to examine the efficiency of applied reforms in 11 areas (starting a business, dealing with permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and labor market regulation) and reveal difficulties for a local entrepreneur to open and run a business in compliance with these regulations (DB, 2016).

GEM was established in 1999 with the aim to measure differences in entrepreneurship attitudes and activities in various countries, to define determining factors for the nature and level of entrepreneurship activities and to establish implications of efforts to strengthen entrepreneurship. GEM data is used to produce a model connecting a series of Entrepreneurial Framework Conditions to the early-stage entrepreneurial activity, entrepreneurial aspirations, technical progress, GDP growth and other macroeconomics variables (GEM, 2016).

We have selected three financial DB indicators for the independent variables (getting credit, paying taxes, and resolving insolvency), and examined how they interact with the dependent variable Total early-stage Entrepreneurial Activity (TEA) provided by the GEM. Independent variables use values of distance-to-frontier (DTF) score, which shows how far certain economy is from the best performing economy across time. DTF score is indicated on a scale from 0 to 100, where 0 represents the worst performance and 100 the frontier.

Research included the data for 50 countries from all continents, which had complete GEM and DB data for the last two years (2014 and 2015). Complete dataset with names of the countries is provided in Appendix 1. The data from these two sources were compiled in a single spreadsheet and analyzed using a panel regression. Statistical analysis was conducted in Stata software, and the output of descriptive statistics for all of the examined variables is shown in Table 1. Based on the descriptive statistics (overall std. dev.), it can be seen that the data significantly varies across countries for all variables.

*Total early-stage Entrepreneurial Activity* (TEA) variable represents the percentage of working age population actively involved in business start-ups, either as nascent entrepre-



Table 1. Descriptive statistics of variables

Variable	Mean	Std. Dev.	Min	Max	Observations
TEA					
overall	13.2965	7.643455	2.93	37.37422	N = 100
between		7.470188	4.42102	33.08316	n = 50
within		1.78392	7.294393	19.29861	T = 2
Getting Credit					
overall	63.8619	17.33791	15	100	N = 100
between		16.07779	20	91.875	n = 50
within		6.687217	47.6119	80.1119	T = 2
Paying Taxes					
overall	73.4245	14.4915	36.34	95.07	N = 100
between		14.49696	36.34	95.07	n = 50
within		1.401638	65.4195	81.4295	T = 2
Resolving Insolvency					
overall	58.6001	23.08075	16.58	98.3	N = 100
between		22.08156	23.8	95.48	n = 50
within		7.074646	41.6851	75.5151	T = 2

neurs or owner - manager of new firms (GEM 2016). *Getting credit* variable represents legal rights of borrowers and lenders with respect to secured transactions and the reporting of credit information. It measures the existence of certain features that facilitate lending within the existing collateral and bankruptcy laws, as well as the coverage, scope and accessibility of credit information available through credit bureaus or credit registries (DB 2016).

*Paying taxes* variable represents the taxes and mandatory contributions that a medium-sized company must pay in a given year as well as the administrative burden of paying taxes and contributions. These include the profit income tax, social contributions, labor and property taxes, dividend tax, capital gains tax, financial transactions tax, waste collection taxes, vehicle and road taxes, etc. *Resolving insolvency* variable treats the time, cost and outcome of insolvency proceedings involving domestic entities, as well as the strength of the legal framework applicable to liquidation and reorganization proceedings (DB 2016).

## RESULTS AND CONCLUSIONS

Random-effects GLS regression was performed in order to examine the impact of independent variables (financial indicators) on dependent variable (early-stage entrepreneurship rate). The results are shown in Table 2. The main analysis was preceded by the correlation analysis and Husman test which confirmed better fit for random-effects analysis over a fixed-effects analysis (Appendix 2). The overall model is statistically significant (Prob > chi2 = 0.0008), as are the coefficients for variables Paying Taxes ( $P > z = 0.02$ ) and Resolving Insolvency ( $P > z = 0.03$ ). However, the coefficient for independent variable Getting Credit was not statistically significant, and therefore was not further considered.

As can be seen in Table 2, the increase of the average DTF indicator for Paying Taxes variable by 1 point reduces the total early entrepreneurship rate by 0.152. In other words, if certain economy increases its average DTF ranking of Paying Taxes indicator for 10 points, the expected decrease of Total

Table 2. Random-effects GLS regression

Number of obs = 100		Number of groups = 50		Obs per group = 2	
R-sq: within = 0.0133		between = 0.2765		overall = 0.2592	
TEA	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]
Getting Credit	-0.007	0.033	-0.22	0.827	-0.071 0.057
Paying Taxes	-0.152	0.067	-2.27	0.023	-0.282 -0.021
Resolving Insolvency	-0.065	0.030	-2.15	0.032	-0.125 -0.006
_cons	28.696	4.785	6.00	0.000	19.318 38.074
Wald chi2(3) = 16.62		Prob > chi2 = 0.0008		corr(u_i, X) = 0 (assumed)	
sigma_u = 6.1970293		sigma_e = 2.5618323		rho = 0.85404612	



early-entrepreneurship rate would be 1.52 percent higher. Similar can be said for Resolving Insolvency variable, except that this impact is more than twice lower. The increase of the average DTF ranking for Resolving Insolvency indicator for 10 points decreases TEA rate by 0.6 percent. The overall finding is that both coefficients are negative, which implies that the increase of observed indicators of financial regulation decreases early-entrepreneurship rate.

This paper has confirmed that some aspects of financial regulation system can have significant impact on development of early-stage entrepreneurial activity. Although this relation was generally described as positive in literature (better financial regulations provide better environment for entrepreneurs), this study has shown the opposite. Therefore, general perception regarding this matter should be considered with caution. The main reason for different conclusions can be the use of heterogeneous and time limited country sample, comprising the economies at different stage of economic development - from factor-driven to those innovation-driven.

Less developed factor-driven economies, which usually have less developed financial regulation, are characterized by high level of necessity-driven entrepreneurial activity. On the other hand, innovation-driven economies usually have high level financial regulations, accompanied by high percentage of opportunity-driven early stage entrepreneurship. Therefore, the examination of different types of early-stage entrepreneurship with the use of larger datasets could be the subject of some further analysis and could provide better insights into the relationship between financial regulations and entrepreneurship.

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## Appendix 1. Complete dataset used

Economy	Year	Getting Credit	Paying Taxes	Resolving Insolvency	TEA
Argentina	2015	50	44.99	45.1	17.74
Australia	2015	90	82.44	81.6	12.79
Barbados	2015	35	72.99	69.4	21.05
Belgium	2015	45	73.84	83.87	6.24
Botswana	2015	55	77.47	54.04	33.23
Brazil	2015	45	40.85	54.52	20.98
Burkina Faso	2015	30	58.08	38.08	29.75
Cameroon	2015	35	36.34	36.42	25.37
Canada	2015	85	93	81.36	14.72
Chile	2015	50	84.5	47.38	25.93
China	2015	50	64.04	55.31	12.84
Colombia	2015	95	58.36	72	22.67
Croatia	2015	55	82.92	53.92	7.69
Ecuador	2015	45	62.84	28.36	33.56
Estonia	2015	70	84.33	64.92	13.14
Finland	2015	65	88.36	93.85	6.59
Germany	2015	70	77.02	91.78	4.70
Greece	2015	50	77.89	55.98	6.75
Guatemala	2015	80	80.04	27.37	17.71
Hungary	2015	75	73.27	49.78	7.92
India	2015	65	56.14	32.6	10.83
Indonesia	2015	50	53.66	46.75	17.67
Iran, Islamic Rep.	2015	45	66.78	32.38	12.93
Ireland	2015	70	95.07	78.46	9.33
Italy	2015	45	63.35	75.98	4.87
Kazakhstan	2015	50	89.85	51.45	11.00
Luxembourg	2015	15	88.58	45.58	10.18
Malaysia	2015	70	83.87	62.48	2.93
Mexico	2015	80	71.17	72.59	21.01
Netherlands	2015	50	86.76	83.77	7.21
Norway	2015	55	90.93	85.62	5.66
Panama	2015	75	48.6	33.66	12.80
Peru	2015	80	79.48	46.57	22.22
Philippines	2015	40	66.46	56.74	17.16
Poland	2015	75	72.16	69.73	9.21
Portugal	2015	45	77.84	84.19	9.49
Puerto Rico (U.S.)	2015	85	63.83	84.88	8.48
Romania	2015	85	80.09	58.7	10.83
Slovak Republic	2015	65	69.62	69.93	9.64
Slovenia	2015	35	83.74	62.91	5.91
South Africa	2015	60	88.71	64.51	9.19
Spain	2015	60	74.74	75.89	5.70
Sweden	2015	55	83.46	78.43	7.16
Switzerland	2015	60	89.13	62.6	7.31
Taiwan, China	2015	60	82.9	78.41	7.30
Thailand	2015	45	78.08	58.73	13.74
United Kingdom	2015	75	90.62	82.04	6.93
United States	2015	95	80.84	90.12	11.88
Uruguay	2015	60	63.44	53.47	14.28
Vietnam	2015	65	43.61	35.02	13.65
Argentina	2014	62.5	44.99	33.17	14.41
Australia	2014	93.75	82.47	87.54	13.14
Barbados	2014	56.25	73	70.05	12.71
Belgium	2014	56.25	74.06	95.77	5.40
Botswana	2014	62.5	77.47	66.64	32.79
Brazil	2014	42.69	40.85	21	17.23
Burkina Faso	2014	43.75	58.08	19.84	21.71
Cameroon	2014	43.75	36.34	16.58	37.37
Canada	2014	81.25	93	93.96	13.04



Economy	Year	Getting Credit	Paying Taxes	Resolving Insolvency	TEA
Chile	2014	68.75	84.57	31.52	26.83
China	2014	62.5	60.97	38.75	15.53
Colombia	2014	62.5	61.6	73.47	18.55
Croatia	2014	75	83.54	32.63	7.97
Ecuador	2014	50	62.5	19.24	32.61
Estonia	2014	75	84.16	41.87	9.43
Finland	2014	75	88.45	97.11	5.63
Germany	2014	81.25	76.84	89.54	5.27
Greece	2014	56.25	81.29	36.56	7.85
Guatemala	2014	87.5	76.48	29.83	20.39
Hungary	2014	68.75	72.04	41.22	9.33
India	2014	68	56.04	27.36	6.60
Indonesia	2014	53.5	53.38	34.04	14.20
Iran, Islamic Rep.	2014	62.5	66.78	20.35	16.02
Ireland	2014	87.5	95.07	94.33	6.53
Italy	2014	50	63.1	67.49	4.42
Kazakhstan	2014	50	89.86	46.46	13.72
Luxembourg	2014	25	88.58	46.82	7.14
Malaysia	2014	100	83.99	52.69	5.91
Mexico	2014	70.75	71.24	72.72	18.99
Netherlands	2014	62.5	86.51	96.35	9.46
Norway	2014	62.5	90.8	98.3	5.65
Panama	2014	68.75	48.7	29.6	17.06
Peru	2014	81.25	79.43	29.77	28.81
Philippines	2014	56.25	66.46	22.91	18.38
Poland	2014	93.75	72.19	58.99	9.21
Portugal	2014	50	77.89	77.07	9.97
Puerto Rico (U.S.)	2014	87.5	72.74	76.02	10.04
Romania	2014	87.5	64.08	32.24	11.35
Slovak Republic	2014	75	70.66	58.24	10.90
Slovenia	2014	50	83.53	53.92	6.33
South Africa	2014	81.25	88.8	38.23	6.97
Spain	2014	68.75	75.33	77.84	5.47
Sweden	2014	75	81.95	81.28	6.71
Switzerland	2014	81.25	89.31	50.2	7.12
Taiwan, China	2014	62.5	82.34	88.09	8.49
Thailand	2014	62.5	76.93	45.43	23.30
United Kingdom	2014	100	90.08	95.33	10.66
United States	2014	86.25	80.85	86.49	13.81
Uruguay	2014	62.5	62.44	48.5	16.08
Vietnam	2014	68.75	43.61	17.43	15.30

Appendix 2. Statistical output

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Random-effects GLS regression           Number of obs   =   100
Group variable: countrynum             Number of groups =    50

R-sq:  within = 0.0133                  Obs per group:  min =    2
      between = 0.2765                    avg           =    2.0
      overall  = 0.2592                    max           =    2

Wald chi2(3) = 16.62
Prob > chi2   = 0.0008

corr(u_i, X) = 0 (assumed)
  
```

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
GettingCredit	-.0071615	.0327296	-0.22	0.827	-.0713104 .0569874
PayingTaxes	-.1515345	.0666118	-2.27	0.023	-.2820913 -.0209778
ResolvingInsolvency	-.0651192	.0303379	-2.15	0.032	-.1245803 -.005658
_cons	28.69619	4.784649	6.00	0.000	19.31845 38.07393
sigma_u	6.1970293				
sigma_e	2.5618323				
rho	.85404612	(fraction of variance due to u_i)			

	Coefficients			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
GettingCre-t	.0219097	-.0071615	.0290712	.0250768
PayingTaxes	-.0644183	-.1515345	.0871162	.1741786
ResolvingI-y	-.01834	-.0651192	.0467791	.0249493

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

Test: Ho: difference in coefficients not systematic

chi2(3) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
 = 3.89  
 Prob>chi2 = 0.2737



## UTICAJ FINANSIJSKIH REGULATIVA NA STOPU PREDUZETNIČKE AKTIVNOSTI U RANOM STADIJUMU

### Apstrakt:

Napori koje Vlada preduzima da stvori bolje poslovno okruženje u smislu visoko-kvalitetnih regulativa i poslovnih zakona trebalo bi da podstaknu razvoj preduzetničke aktivnosti na različite načine. Određeni izvori u literaturi potvrđuju pomenutu izjavu. Cilj rada jeste da ispita kako su različite vrste finansijskih regulativa, poput procedura za dobijanje kredita, plaćanje poreza i rešavanje stečajnog postupka, u vezi sa osnivanjem preduzeća. Uzorak je obuhvatio Izveštaj Svetske banke o poslovanju i podatke globalne studije o preduzetništvu (GEM) za 50 zemalja u periodu od dve godine. Istraživanje je pokazalo da finansijske regulative mogu imati značajan uticaj na stopu preduzetničke aktivnosti u ranom stadijumu, ali taj odnos ne mora nužno biti definisan kao pozitivan.

### Ključne reči:

preduzetništvo,  
finansijska politika,  
poslovanje,  
regulative.