

Firm growth in BRICS: What really matters?

Syed Manzur Quader ¹

Mohammad Nayeem Abdullah ²

Kamruddin Parvez ³

Abstract

The article examines a number of constraints in terms of access to finance, corruption, infrastructure, crime, competition, and performance measures etc. hindering firm growth in BRICS countries using the comprehensive company-level data from the World Business Environment Survey (WBES). Starting with a total of 37 factors impeding the operation and growth of businesses, the article regroups them into 8 using factor analysis. The article then applied Multilevel Mixed-Effects Linear Regression controlling for country random effects to estimate a model to assess the significance and extent of these factors on firm growth after controlling for other country and firm level effects. The results demonstrate that with the exception of two factors (Moral Hazard & Adverse Selection, Government Subsidies), all other factors namely Law and Order, Export-Import, Financial, Macroeconomic, Environmental & Regulatory Constraint, Tax and service regulation play a statistically significant role on the firms' operation and growth and such findings are found to be robust in terms of alternative model specifications and estimation techniques.

Keywords

BRICS, factor analysis, constraints, growth, correlation, mixed-effects

Introduction

The acronym BRIC was first referred to Brazil, Russia, India, and the People's Republic of China by Jim O'Neill of Goldman Sachs in 2001 which later admitted South Africa as a member to the club in December 2010. Since then, the group BRICS has been considered as the vanguard of emerging economies of the global south. The BRICS economy rose from 11 percent of global GDP

¹ Associate Professor, CIU Business School, Chittagong Independent University, Bangladesh.

² Associate Professor, CIU Business School, Chittagong Independent University, Bangladesh.

³ Assistant Professor, CIU Business School, Chittagong Independent University, Bangladesh.

Corresponding author:

Syed Manzur Quader, Associate Professor, CIU Business School, Chittagong Independent University.
Email: manzur@ciu.edu.bd

in 1990 to 30 percent in 2015 and is poised to reach 40 percent by 2050 (Prasad, 2013). This along with increased globalization has meant that BRICS has become an important source of global growth and political influence in shaping global economic policy and promoting financial stability. Wilson & Purushothaman (2003) posit that growth generated by large developing nations, such as BRICs (Brazil, Russia, India and China) can become a larger global economic force in future which is subsequently echoed by Cheng et al (2007) along with Lin & Rosenblatt (2012). Salmi & Scott-Kennel (2012) posit that the rise of BRICS will significantly influence international business practices in a new competitive landscape created due to globalization.

Growth of the BRICS community, which was on rapid ascent since 1990s, faced constraints in the aftermath of the global economic and financial crisis that began in 2008. Though initially it appeared that BRICS might have overcome the impact of the global economic crisis, but their economies have recently started to slowdown which has been reflected in their declining collective exports to developed markets and investments into their respective economies. This caused their real GDP growth falling from over 8 per cent in 2010 to just over 4 per cent in 2015 (Prasad, 2013 and authors' own calculation). The World Bank has estimated that in the event that growth in BRICS economies fell one percentage point below expectations, other emerging markets would suffer 0.8 percentage points growth over a period of two years and global growth would suffer by 0.4 percentage points in the form of financial, trade and economic spill-overs. Until 2013, the slowdown was predominantly driven by external factors; however, the role of domestic factors has increased in the following years and has come to the forefront as the predominant forces behind slowing growth in BRICS. This reflects declining potential growth and a deterioration in fiscal positions of BRICS in the world (Mminele, 2016).

Economic growth is a multifaceted phenomenon (Easterly & Ribero, 1993; Levine, 1997; Ciccone & Jarocinski, 2010) and an important catalyst for economic growth is growth of the firms (Kogut & Zander, 1993; Sapienza et al, 2006). Brown & Mawson (2013) determine that growth trigger points are diverse and play a significant role in shaping the growth trajectory of the firms and Gupta, Guha & Krishnaswami (2013) rightly posit that it is important to have an understanding of the growth path of a firm. In this paper, we make an attempt to identify the domestic constraining factors hampering firms' growth in BRICS countries which may create scope for the policy makers in the BRICS to come up with corrective policy measures that may help reinvigorate their domestic economic climate and reestablish their ties and positions in the world economy.

The main objectives of this paper are: i) to describe a large number of constraints in terms of a few factors hindering firm growth in BRICS and gain insight to these factors; ii) use the above factors into regressions to determine the magnitude and significance level of each of them on firm growth. Starting with a total of 37 factors impeding their operation and growth of business, we construct a factor rotation matrix which regroups the 37 factors into 8 groups.

We have then used Multilevel Mixed-Effects Linear Regression controlling for country random effects to estimate a model to assess the significance and extent of these factors on firm growth after controlling for other country and firm effects. To the best of our knowledge, this is the first study to use such a comprehensive company level data to assess the major domestic and micro obstacles to performance and growth of the firms operating in the BRICS countries. The results demonstrate that with the exception of two factors, all other factors play statistically significant role on the firms' operation and growth and such findings are found to be robust to alternative model specifications and estimation techniques.

The rest of the paper is structured in the following manner. Just the next section describes the contemporary literature which is subsequently followed by description of the data and methodology, results and conclusion.

Literature Review

Firm growth is an important and well-studied topic in the economic literature (Boubakri, Ghoul & Saffar, 2015; Davidsson & Wiklund, 2006; Penrose, 1995) and so have researches been conducted to determine the catalyst and constraining factors to firm growth. Market imperfection, caused as a result of information asymmetries and conflicts of interest are stated to constrain firm growth (Demirguc-Kunt & Maksimovic, 1998). In a subsequent study, it was found that the constraining effects of financial, legal and corruption obstacles are reduced as a result of financial and institutional developments (Beck, Demirguc-Kunt & Maksimovic, 2005). Musso & Schiavo (2008) in their study on French firms find that financial constraints restrict market survival, and access to external financial resources has a positive effect on firm growth in terms of sales, capital stock and employment. Oliveira & Fortunato (2006) while studying Portuguese firms determine that financial constraints on firm growth may be relatively severe for small and young firms. Similar findings have been later reported by Huynh & Petrunia (2010). Anyanwu (2014) analyzes the factors driving down China's growth including inflation rate, domestic credit to the private sector, net ODA inflows, population growth, telephone density, and oil and agricultural/raw materials prices.

The financial services sector plays a critical role in the modern economy (Jung, 1986; Levine, 1997). Economic activities are fundamentally dependent on access to financial services (Kono & Schuknecht, 2000). Johnson & Kwak (2012) rightly opine that financial innovations have been significant in recent decades but caution that a thorough understanding of the costs and benefits is important. Hyttinen & Toivanen (2005) mention that imperfections in capital markets hold back innovation and growth, whilst King and Levine (1993) earlier highlighted that better financial systems improve the probability of successful innovation and accelerate economic growth, a viewpoint shared by Demirguc-Kunt & Levine (2008). Sundbo (1997) opined that innovation led to

positive outcomes for the firm, and researchers such as Vermeulen (2004) echoes the concern through stating that innovation is gaining increasing recognition in the financial sector.

Giniuniene & Jurksiene (2015) opine that dynamic capabilities of the firm are important for growth in an economy of innovation and knowledge. Dynamic capabilities are viewed by them as an important tool for responding to market changes. Wu, Chen & Jiao (2016) in their examination of a sample of Chinese manufacturing firms find that international diversification is an important aspect of the firm's innovation, and the opportunity-capitalizing and opportunity-recognizing capabilities of the firm will influence performance. Luo (2000) earlier reminded that the ability of a firm to survive in the current international environments depends largely on its dynamic capabilities. Eisenhardt & Martin (2000) opine that dynamic capabilities exhibit common patterns across firms. Hite & Hesterly (2001) posit that networks play an important role in the growth of the firm, and that the network relationships are important avenues for attaining resources which enable growth.

Song, Benedetto & Nason (2007) find a correlation between organizational capabilities and financial performance, while earlier Huselid, Jackson & Schuler (1997) found a correlation between effective human resource management and firm productivity. Darroch (2005) posits that a firm with knowledge management capability will use resources more effectively and exhibit better performance. Lawson & Samson (2001) state that innovation management can be viewed as a form of organizational capability, and companies which invest in and nurture this capability experience superior business performance. Grafton, Lillis & Widener (2010) examine the influence of performance evaluation on organization capabilities and performance and find that performance evaluation measures need to be decision-facilitating and decision-influencing in nature to be increasingly used by the managers.

Gondim et al (2017) opine that developing markets have importance in the world economy, but the domestic factors behind this success are not well studied. The findings suggest that domestic macroeconomic factors are statistically significant in explaining investments abroad, but several institutional factors such as corruption have emerged, having a negative effect and political violence having a positive effect on Brazilian outward foreign direct investment. Lau (2011) clarifies that firms in transitional economies develop strategies to exploit new market opportunities, and strategies which focus on product innovation and low costs lead to higher firm performance. Company performance is also driven by organizational transparency (Berggren and Bernshiteyn, 2007). Geroski (2002) while examining the growth of firms finds that corporate growth rates are random.

Becker (2013) discusses the developments in many of the emerging countries in his book. The book has two initial chapters which include contextual and framing discussions of institutional changes and economic performance in the BRICS and in some other countries in eastern and southern Europe. Stiglingh (2015) finds that real interest rates and total investment is positively related to economic growth in both BRICS and G-7, while other variables such

as stock market size, play a significant role in explaining economic growth in both BRICS and G-7 countries. Groot et al (2011) state that if the BRIC countries experience episodes of relatively high economic growth during the last decades, there are differences in their respective growth processes. Rabia (2016) mentions that Trade in Financial Services (TIFS) has an important role in channeling investments into productive uses, and therefore promote growth. The results suggest that a causal relationship exists between TIFS and economic growth of the BRICS economies. Luo, Sun & Wang (2011) examine comparative strategic management practices in the BRICs countries and find notable variations in the framework through which individual countries implement and manage such practices.

Therefore, it has been evident in the literature that firms face various kinds of constraints which vary across countries; industries and products and we will be focusing on those among the firms operating in the BRICS.

Data and Methodology

The paper uses data from the World Business Environment Survey (WBES), which provides the world's most comprehensive company-level data in emerging markets and developing economies covering a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures. The surveys have been conducted based on face-to-face interviews with firm managers and owners of 10,090 firms in 80 countries and the territory West Bank and Gaza in late 1999 and early 2000 by different units within the World Bank. The main objective of the survey is to identify obstacles to firm performance and growth around the world and help produce research on the micro-economic foundations of growth. The survey uses a 4-point Likert Scale, where a rating of 1 denotes no obstacle and 4 denotes a major obstacle. These ratings provide a summary measure of the extent to which financing, legal, corruption and other problems creates obstacles to growth. In this paper, we use the above survey data of 1131 firms in 5 countries of the BRICS to apply a mix of statistical tools and techniques to identify the significant factor which have an impact on the growth of firms in the BRICS countries. Table 1 below reports the number of firms for each country in the sample which has been precisely taken from the WBES and is consistent with other studies that use the WBES (Beck, Demirguc-Kunt and Maksimovic, 2005; Schiffer and Weder, 2001).

Table 1. Summary Statistics

	Frequency	Percentage	Cumulative Percentage
Brazil	201	17.77	17.77
Russia	525	46.42	64.19
India	210	18.57	82.76
China	101	8.93	91.69
South Africa	94	8.31	100
Total	1131	100	

Appendix 1 at the end of this paper shows firm-level financing, legal, and corruption obstacles reported by firms averaged over each country. The World Business Environment Survey (WBES) asked enterprise managers to rate the extent to which financing, legal, and corruption problems presented obstacles to the operation and growth of their businesses. The main purpose of the survey is to identify obstacles to firm performance and growth around the world. Thus, the survey includes many questions on the nature of financing and legal obstacles to growth, as well as questions on corruption issues. A rating of 1 denotes no obstacle; 2, a minor obstacle; 3, a moderate obstacle; and 4, a major obstacle. These ratings provide a summary measure of the extent to which different factors create obstacles to growth, and we refer to them below as “summary” obstacles.

Factor Analysis

To condense the information contained into these 37 variables which are expected to be correlated to each other, we conduct factor analysis to get a smaller set of preferably uncorrelated factors. Factor analysis is a statistical approach that can be used to analyze interrelationships among a large number of variables and to explain these variables in terms of their common underlying dimensions (factors). It involves finding a way of condensing the information contained in a number of original variables into a smaller set of dimensions (factors) with a minimum loss of information. Variables that are correlated with one another which are also largely independent of other subsets of variables are combined into factors.

Table 2. Factor Rotation Matrix (promax)

Variable	F1	F2	F3	F4	F5	F6	F7	F8	Uniqueness
Infr			0.365				0.310		0.760
Gepi				0.734					0.409
Infl				0.593			0.370		0.485
Exr				0.381					0.516
Scri	0.935								0.252
O cri	0.943								0.260
Txreg				0.811					0.314
Gcorr	0.623								0.378
tadm_reg				0.708					0.394
Juds	0.391								0.523
Antcomp	0.448								0.486
Coll					0.679				0.497
Papr					0.779				0.368
Hint					0.492				0.476
Spn					0.675				0.435
Lckm					0.391				0.678
Acfk		0.694							0.435
Acnb		0.781							0.366
Expf		0.738							0.408
Lesf		0.732							0.424
Crd		0.412							0.525
Ltloan		0.480							0.567

[Cont.]

Table 2. Factor Rotation Matrix (promax)

Variable	F1	F2	F3	F4	F5	F6	F7	F8	Uniqueness
Cmpa					0.896				0.257
Cmpb					0.818				0.292
Cmpc									0.574
Cmpd					0.553				0.571
Cmpe					0.760				0.385
Cmpg		0.365					0.573		0.443
Cmph		0.325					0.556		0.499
Cmpf					0.307		0.393		0.534
bl_reg								0.476	0.609
cus_reg									0.552
frik_reg						0.681			0.510
env_reg						0.496		0.502	0.495
fir_reg								0.630	0.518
hit_reg				0.706					0.394
lab_reg						0.547			0.473
FL mean	0.668	0.566	0.563	0.655	0.667	0.604	0.440	0.536	

Here, columns represent derived factors and rows represent input variables. The factor loadings represent degree to which each of the variables correlates with each of the factors and range from -1 to 1. Inspection of factor loadings reveals extent to which each of the variables contributes to the meaning of each of the factors. Factor loadings are the weights and correlations between each variable and the factor. The higher the load the more relevant in defining the factor's dimensionality. A negative value indicates an inverse impact on the factor. Here, eight factors are retained because both have eigen values over 1. Uniqueness is the variance that is 'unique' to the variable and not shared with other variables. It is equal to 1 –communality (variance that is shared with other variables). Notice that the greater 'uniqueness' the lower the relevance of the variable in the factor model. Here, loadings < .3 have been suppressed.

Table 3. Factor Rotation Matrix

	F1	F2	F3	F4	F5	F6	F7	F8
F1	-0.399	0.172	0.435	-0.342	0.274	0.183	-0.458	0.283
F2	0.776	0.712	0.687	0.595	0.547	0.594	0.507	0.165
F3	0.261	-0.061	-0.127	-0.367	-0.230	0.344	0.196	0.390
F4	0.025	-0.411	0.217	0.593	-0.336	0.396	-0.481	0.433
F5	0.217	-0.435	-0.195	-0.064	0.664	0.053	0.018	0.087
F6	-0.272	0.214	-0.463	0.189	0.120	0.290	-0.026	0.079
F7	-0.015	-0.130	0.074	-0.042	-0.050	0.498	0.237	-0.688
F8	-0.219	-0.198	0.132	0.027	-0.031	-0.063	0.453	0.258

Starting with their perceived degree of obstacles with regard to total of 37 factors impeding their operation and growth of business, we construct a factor rotation matrix which regroups the 37 factors into 8 groups designated as below:

F1: Law and Order Factors.

F2: Export –Import Financing Factors.

F3: Financial Factors.

F4: Macroeconomic (inflation, exchange rate etc.) Factors.

F5: Adverse selection and moral hazard behavior factors.

F6: Environmental & Regulatory Constraint related factors.

F7: Government initiative & subsidies related factors.

F8: Tax and service regulation (like custom, fire protection etc) related factors.

The Kaiser-Meyer-Olkin test of sampling adequacy shows that the data is reliable and factoring is valid. The Kaiser-Meyer-Olkin Measure of sampling adequacy is a statistic that indicates the proportion of variance in variables magnitudes of the partial correlation coefficients. If two variables share a common factor with other variables, their partial correlation will be small once the factor is taken into account. High values (close to 1.0) generally indicate that a factor analysis may be useful with the data. If the value is less than 0.50, the results of the factor analysis probably won't be very useful.

Table 4. Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Variable	Kmo	Variable	Kmo
Infr	0.7651		
Gcpi	0.8461	Crd	0.9137
Infl	0.8540	Ltloan	0.8475
Exr	0.8462	Cmpa	0.7794
Scri	0.8494	Cmpb	0.8179
Ocri	0.8517	Cmpc	0.9166
Txreg	0.8550	Cmpd	0.8723
Gcorr	0.9367	Cmpe	0.8539
tadm_reg	0.8460	Cmpg	0.8731
Juds	0.9239	Cmph	0.9025
Antcomp	0.9273	cmpf	0.8807
Coll	0.9012	bl_reg	0.8738
Papr	0.8644	cus_reg	0.8347
Hint	0.8518	frk_reg	0.8473
Spn	0.8983	env_reg	0.8187
Lckm	0.8879	fir_reg	0.7960
Acfk	0.9048	hit_reg	0.8380
Acnb	0.8912	lab_reg	0.8144
Expf	0.9263	Overall	0.8703
Lesf	0.9141	Scale Reliability Coefficient:	0.8983

In Table 4 the study obtains a reliability coefficient of .8983. A coefficient of .6 and above indicates that the data has a high degree of validity and reliability. The paper ranked the 8 factors according to their mean factor loading coefficients in table 5 and the first factor related to Law and Order emerged to be the most significant, while the eighth factor related to Tax and Service Regulation emerged as the least significant among them.

Table 5. Factor Rankings of Firm Constraints

Factors	Variables	Factor Loading Mean	Ranking
Factor 1	Law and Order Factors.	0.66766	1
Factor 2	Export –Import Financing Factors.	0.56595	5
Factor 3	Financial Factors.	0.5634	6
Factor 4	Macroeconomic (inflation, exchange rate etc.) Factors.	0.6552	3
Factor 5	Adverse Selection and Moral Hazard Behavior Factors.	0.66658	2
Factor 6	Environmental and Regulatory Constraint Related Factors.	0.604375	4
Factor 7	Government Initiative and Subsidies Related Factors.	0.44032	8
Factor 8	Tax and Service Regulation (Customs, Fire Protection etc) Related Factors.	0.536033	7

Regression results:

We have estimated the following equations to find out the significance and magnitude of the derived factors on firm growth. For firm growth, we have used percentage change in sales over past three years. We have used two firm level control variables, namely firm size as logarithm of fixed asset and firm age as logarithm of no of years since established. We have also included two country level control variables, namely GDP and inflation of the countries in question.

$$\text{Growth}_i = \alpha + \sum \beta \text{constraints}_k + \sum \gamma \text{firm controls}_i + \sum \theta \text{country controls}_j + \varepsilon_i \quad (1)$$

Table 6: Summary statistics of the regression variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Growth	536	46.80	75.26	0	640
Size	1066	6.341	7.074	0	22.942
Age	975	2.2326	1.112	0	5.0690
GDP	1131	27.131	.4099	26.087	27.984
Inflation	1131	20.127	16.440	2	37.7

First, we estimated equation 1 with ordinary least squares method (Table 7), where growth is taken as the dependent variable as a function of the constraints group. Model1 contains only the factors and it has passed the variance inflation factor (VIF) for multicollinearity and Breusch-Pagan test for heteroscedasticity. Model 2 contains factors, firm and country controls and model 3 contains country and sector specific effects in addition. Result of the final model reveals that with the exception of F5 and F7, all other factors are statistically significant at 5% or 10% levels.

Table 7: Ordinary Least Squares (OLS) Model

	Model 1	Model 2	Model 3
Factor 1	-19.384** (8.741)	-18.839** (8.213)	-18.087** (8.294)
Factor 2	2.598 (7.328)	-13.451* (7.567)	-13.056* (7.589)
Factor 3	1.105 (8.469)	13.677 (8.509)	16.673* (8.727)
Factor 4	8.998 (7.784)	-17.776* (10.402)	-17.741* (10.417)
Factor 5	2.531 (6.750)	1.188 (6.511)	1.483 (6.601)
Factor 6	2.761 (7.823)	23.645** (9.175)	21.567** (9.278)
Factor 7	-1.184 (7.862)	-4.804 (7.882)	-2.444 (8.016)
Factor 8	-18.681** (7.209)	-20.671*** (6.854)	-20.071*** (6.894)
Size		0.454 (2.231)	0.213 (2.266)
Age		-4.596 (6.783)	-3.633 (6.847)
GDP		-8.374 (46.990)	0.000 (.)
Inflation		1.995 (1.377)	2.349** (1.045)
Constant	50.844*** (5.289)	243.17 (1311.531)	-20.741 (41.738)
No of obs	139	136	136
R square	.1031573	.2616745	.2829652
Adj R square	.047967	.1896427	.1933358

Standard errors are in the parenthesis and ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively.

Model 3 includes country and sector fixed effects.

However, such regular regression ignores the average variation between entities and individual regression may face sample problems and lack of generalization. As the firms are from different countries, a regression analysis is run with Country Random Effects using Multilevel Mixed-Effects Linear Regression using the same specification as the OLS Model and results are shown in table 8.

Table 8: Mixed effects linear regression models

	Model 1	Model 2	Model 3
Factor 1	-19.030** (7.930)	-18.839** (7.810)	-18.087** (7.791)
Factor 2	-8.795 (7.188)	-13.451* (7.197)	-13.056* (7.129)
Factor 3	10.427 (8.059)	13.677* (8.092)	16.673** (8.198)
Factor 4	-7.592 (9.025)	-17.776* (9.892)	-17.741* (9.785)
Factor 5	2.040 (6.139)	1.188 (6.192)	1.483 (6.201)
Factor 6	19.857** (8.237)	23.645*** (8.726)	21.567** (8.715)
Factor 7	-4.918 (7.456)	-4.804 (7.496)	-2.444 (7.529)
Factor 8	-20.128*** (6.614)	-20.671*** (6.518)	-20.071*** (6.476)
Size		0.454 (2.122)	0.213 (2.129)
Age		-4.596 (6.451)	-3.633 (6.431)
GDP		-8.374 (44.687)	-9.268 (45.979)
Inflation		1.995 (1.310)	2.110 (1.344)
Constant	42.668*** (15.660)	243.173 (1247.273)	258.524 (1285.403)
No of observations	139	136	136
Chi squared	24.356	48.201	53.670
P value for Chi sq~d	.0019	2.88e-06	2.98e-06
Log likelihood	-758.403	-735.056	-733.067

Standard errors are in the parenthesis and ***, ** and * indicate significance at the 1%, 5% and 10%, level respectively. Model 3 includes sector fixed effects.

The results show that with the exception of Adverse Selection and Moral Hazard Behavior as well as Government Subsidies Related Factors, all other factors exert significant influence on growth. In addition Government Subsidies obtains least preference in the rotation matrices, and also shows similar results in regression analysis. Adverse Selection and Moral Hazard Factor is also found to be insignificant in the regression analysis. The results suggest that the identified obstacles, except for financial, environmental regulation related factors, all pose a significant hindrance for the growth of firms in the BRICS countries. It should be noted here that the regressor factors, financial (F3) and environment regulation (F6) actually represents condensed information contained by 6 and 4 survey answers respectively and it is evident in the literature that access to finance and enforcement of environmental regulation may work as catalyst to growth (Alpay et al, 2002, Lanoie et al., 2008 and Musso and Schiavo, 2008).

Conclusion

The role of BRICS has become very important because of the debatable issues of G7 and OECD. In the recent global financial crisis, the role of the non-G7 countries became evident and resulted in the emergence of G20 countries for multiple power redistribution. However, the powerful Western countries mostly control the International Financial Institutions. This is why BRICS is a unique platform where non-OECD leaders can discuss global challenges and co-ordinate their actions within and outside global institutions which made BRICS such an important influencer of global growth, policy devising and financial stability. The study aims to identify the obstacles to firm performance and growth in the BRICS countries and the result shows with the exception of two factors (Moral Hazard & Adverse Selection, Government Subsidies); all other factors play a statistically significant role on the firms' operation and growth. There is no other comprehensive study which highlights the influence of domestic factors on internal growth focusing on BRICS and the findings are somewhat similar to the results of Beck, Demirguc-Kunt & Maksimovic, (2005), Musso & Schiavo (2008) & Gondim et al (2017). Thus, the policymakers may find this study hinting them to take initiatives to try neutralizing the constraining factors and thus facilitating the firms to improve their performance and thus enhance economic growth of BRICS nations. The future research direction can move towards new topics like firm-level internationalization; international business strategy; attracting and benefiting from FDI; corporate and institutional governance; dynamic organizational capabilities etc. which may help the BRICS nations enjoy their growth potential and thus reestablish their ties and positions in the world economy.

References

- Alpay, E., Buccola, S., & Kerkvliet, J. (2002). Productivity growth and environmental regulation in Mexican and U.S. food manufacturing. *American Journal of Agricultural Economics*, 84(4), 887–901. doi:10.1111/1467-8276.00041
- Anyanwu, J. C. (2014). Factors Affecting Economic Growth in Africa: Are There any Lessons from China? *African Development Review*, 26 (3), 468–493. doi:10.1111/1467-8268.12105
- Bech, T., Demirguc-Kunt, A., & Maksimovic, V. (2005). Financial and Legal Constraints to Growth: Does Firm Size Matter? *The Journal of Finance*, 60(1), 137–177. doi:10.1111/j.1540-6261.2005.00727.x
- Becker, U. (Ed.). (2013). *The BRICs and emerging economies in comparative perspective: Political economy, liberalization and institutional change*. Routledge.
- Berggren, E., & Bernshiteyn, R. (2007). Organizational transparency drives company performance. *Journal of Management Development*, 26 (5), 411–417. doi: 10.1108/02621710710748248
- Boubakri, N., El Ghoul, S., & Saffar, W. (2015). Firm growth and political institutions. *Journal of Multinational Financial Management*, 31, 104–125. doi:10.1016/j.mulfin.2015.05.003
- Brown, R., & Mawson, S. (2013). Trigger points and high growth firms. *Journal of Small Business and Enterprise Development*, 20 (2), 279–295. doi: 10.1108/14626001311326734
- Cheng, H. F., Gutierrez, M., Mahajan, A., Shachmurove, Y., & Shahrokhi, M. (2007). A future global economy to be built by BRICs. *Global Finance Journal*, 18 (2), 143–156. doi:10.1016/j.gfj.2006.04.003
- Cicccone, A., & Jarociński, M. (2010). Determinants of economic growth: Will data tell? *American Economic Journal: Macroeconomics*, 2(4), 222–246. doi:10.1257/mac.2.4.222
- Darroch, J. (2005). Knowledge management, innovation and firm performance. *Journal of Knowledge Management*, 9 (3), 101–115. doi: 10.1108/13673270510602809
- Davidsson, P., & Wiklund, J. (2006). Conceptual and empirical challenges in the study of firm growth. *Entrepreneurship and the Growth of Firms*, 1 (1), 39-61. doi.org/10.4337%2F9781781009949.00010
- Demirgüç-Kunt, A. and Levine, R. (2008). Finance, financial sector policies, and long-run growth. *World Bank Policy Research Working Paper Series 4469*.
- Demirgüç-Kunt, A., & Maksimovic, V. (1998). Law, finance, and firm growth. *The Journal of Finance*, 53(6), 2107–2137. doi:10.1111/0022-1082.00084
- Easterly, W. and Rebelo, S., (1993). Fiscal policy and economic growth. *Journal of Monetary Economics*, 32 (3), pp.417-458. doi.org/10.1016/0304-3932(93)90025-B
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal*, 21(10), 1105–1121. doi.org/10.1002/1097-0266(200010/11)21:10<1105::AIDSMJ133>3.0.CO; 2-E
- Geroski, P. A. (2002). The growth of firms in theory and in practice. *Competence, Governance, And Entrepreneurship-Advances in Economic Strategy Research*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.463.8766&rep=rep1&type=pdf>

- Giniuniene, J., & Jurksiene, L. (2015). Dynamic Capabilities, Innovation and Organizational Learning: Interrelations and Impact on Firm Performance. *Procedia - Social and Behavioral Sciences*, 213, 985–991. doi:10.1016/j.sbspro.2015.11.515
- Gondim, I. J. C., Morandier, N., Dias, I. R. R., Couto, C. A. P., & Charotta, T. C. A. (2017). Analysis of domestic factors affecting outward foreign direct investment in Brazil. *Latin American Business Review*, 18 (1), 1-18. doi.org/10.1080/10978526.2016.1251821
- Grafton, J., Lillis, A. M., & Widener, S. K. (2010). The role of performance measurement and evaluation in building organizational capabilities and performance. *Accounting, Organizations and Society*, 35 (7), 689–706. doi:10.1016/j.aos.2010.07.004
- Groot, S. P. T., Mohlmann, J. L., Garretsen, J. H., & de Groot, H. L. F. (2011). The crisis sensitivity of European countries and regions: stylized facts and spatial heterogeneity. *Cambridge Journal of Regions, Economy and Society*, 4 (3), 437–456. doi:10.1093/cjres/rsr024
- Gupta, P., Guha, S., & Krishnaswami, S. (2013). Firm growth and its determinants. *Journal of Innovation and Entrepreneurship*, 2 (1), 15. doi: 10.1186/2192-5372-2-15
- Hite, J. M., & Hesterly, W. S. (2001). The evolution of firm networks: from emergence to early growth of the firm. *Strategic Management Journal*, 22(3), 275–286. doi:10.1002/smj.156
- Huynh, K. P., & Petrunia, R. J. (2010). Age effects, leverage and firm growth. *Journal of Economic Dynamics and Control*, 34 (5), 1003–1013. doi:10.1016/j.jedc.2010.01.007
- Huselid, M. A., Jackson, S. E., & Schuler, R. S. (1997). Technical and strategic human resources management effectiveness as determinants of firm performance. *Academy of Management Journal*, 40(1), 171–188. doi: 10.2307/257025
- Hyytinen, A., & Toivanen, O. (2005). Do financial constraints hold back innovation and growth? *Research Policy*, 34(9), 1385–1403. doi:10.1016/j.respol.2005.06.004
- Johnson, S., & Kwak, J. (2012). Is financial innovation good for the economy? Innovation good for the economy? *Innovation Policy and the Economy*, 12, 1–16. doi: 10.1086/663153
- Jung, W. S. (1986). Financial development and economic growth: International evidence. *Economic Development and Cultural Change*, 34(2), 333–346. doi: 10.1086/451531
- Khatun, R. (2016). Relation between trade in financial services and economic growth in BRICS economies: Cointegration and causality approach. *Global Business Review*, 17(1), 214–225. doi: 10.1177/0972150915610727
- King, R. G., & Levine, R. (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3), 513–542. Retrieved from http://faculty.haas.berkeley.edu/ross_levine/papers/1993_-jme_entrepreneurship.pdf
- Kono, M., & Schuknecht, L. (2000). How does financial services trade affect capital flows and Financial stability. *The Internationalization of Financial Services: Issues and Lessons for Developing Countries*. London: Kluwer Law International.

- Kogut, B., & Zander, U. (2003). Knowledge of the firm and the evolutionary theory of Kogut, B., & Zander, U. (2003). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 34(6), 516–529. doi:10.1057/palgrave.jibs.8400058
- Lanoie, P., Patry, M., & Lajeunesse, R. (2008). Environmental regulation and productivity: testing the porter hypothesis. *Journal of Productivity Analysis*, 30(2), 121–128. doi: 10.1007/s11123-008-0108-4
- Lau, C.-M. (2011). Team and organizational resources, strategic orientations, and firm performance in a transitional economy. *Journal of Business Research*, 64(12), 1344–1351. doi:10.1016/j.jbusres.2011.01.001
- Lawson, B., & Samson, D. (2001). Developing innovation capability in organizations: Lawson, B., & Samson, D. (2001). Developing innovation capability in organizations: A dynamic capabilities approach. *International Journal of Innovation Management*, 05(03), 377–400. doi: 10.1142/s1363919601000427
- Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of Economic literature*, 35(2), 688–726. Retrieved from <https://www.jstor.org/stable/2729790>
- Lin, J. Y., & Rosenblatt, D. (2012). Shifting patterns of economic growth and rethinking development. *Journal of Economic Policy Reform*, 15(3), 171–194. doi:10.1080/17487870.2012.700565
- Luo, Y. (2000). Dynamic capabilities in international expansion. *Journal of World Business*, 35(4), 355–378. doi: 10.1016/s1090-9516(00)00043-2
- Luo, Y., Sun, J., & Wang, S. L. (2011). Comparative strategic management: An emergent field in international management. *Journal of International Management*, 17(3), 190–200. doi:10.1016/j.intman.2011.05.002
- Mminele, D. (2016). The role of BRICS in the global economy. Address at Bundesbank Regional Office in North Rhine-Westphalia, Düsseldorf, Germany.
- Musso, P., & Schiavo, S. (2008). The impact of financial constraints on firm survival and growth. *Journal of Evolutionary Economics*, 18(2), 135–149. doi: 10.1007/s00191-007-0087-z
- Oliveira, B., & Fortunato, A. (2006). Firm growth and liquidity constraints: A dynamic analysis. *Small Business Economics*, 27(2-3), 139–156. doi: 10.1007/s11187-006-0006-y
- Penrose, E. T. (2009). *The theory of the growth of the firm*. Oxford university press.
- Prasad, B.R. (2013). BRICS and the global economy. Financial technologies knowledge management company. Retrieved from http://www.nkibrics.ru/system/brics/docs/ata/54c7/a13d/6272/6937/f918/0000/original/BRICS_AND_THE_GLOBAL_ECONOMY.pdf?1422369085
- Salmi, A., & Scott-Kennel, J. (2012). Just another BRIC in the wall? The rise of BRICs in the wall? The rise of BRICs and educating tomorrow's global managers. *Academy of International Business*. Retrieved from https://researchcommons.waikato.ac.nz/bitstream/handle/10289/6928/Scott_Kennel%202012%20Just%20another%20BRIC.pdf?sequence=1
- Sapienza, H. J., Autio, E., George, G., & Zahra, S. A. (2006). A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review*, 31(4), 914–933. doi:10.5465/amr.2006.22527465
- Song, M., Di Benedetto, C. A., & Nason, R. W. (2007). Capabilities and financial performance: the moderating effect of strategic type. *Journal of the Academy of Marketing Science*, 35(1), 18–34. doi: 10.1007/s11747-006-0005-1

- Stiglingh, A. (2015). Financial development and economic growth in BRICS and G-7 countries: *A comparative analysis* (Doctoral dissertation). North West University.
- Sundbo, J. (1997). Management of innovation in services. *Service Industries Journal*, 17(3), 432-455. doi:10.1080/02642069700000028
- Vermeulen, P. (2004). Managing product innovation in financial services firms. *European Management Journal*, 22(1), 43–50. doi:10.1016/j.emj.2003.11.012
- Wilson, D., & Purushothaman, R. (2003). Dreaming with BRICs: The path to 2050 (Vol. 99). Wilson, D., & Purushothaman, R. (2003). Dreaming with BRICs: *The path to 2050* (Vol. 99).
- Wu, H., Chen, J., & Jiao, H. (2016). Dynamic capabilities as a mediator linking international diversification and innovation performance of firms in an emerging economy. *Journal of Business Research*, 69(8), 2678–2686. doi:10.1016/j.jbusres.2015.11.003

Appendix 1:

1. infr “General constraint—infrastructure” 1=no obstacle 4=major obstacle
2. gcpi “General constraint—political instability” 1=no obstacle 4=major obstacle
3. infl “General constraint—inflation” 1=no obstacle 4=major obstacle
4. exr “General constraint—exchange rate” 1=no obstacle 4=major obstacle
5. scri “General constraint—street crime” 1=no obstacle 4=major obstacle
6. ocri “General constraint—organized crime” 1=no obstacle 4=major obstacle
7. txreg “General constraint—taxes and regulations” 1=no obstacle 4=major obstacle
8. gcorr “General constraint—corruption” 1=no obstacle 4=major obstacle
9. tadm_reg “Tax administration regulations 1=no obstacle 4=major obstacle
10. juds “General constraint—functioning of the judiciary 1=no obstacle 4=major obstacle”
11. antcomp “General constraint—anticompetitive practices 1=no obstacle 4=major obstacle
12. coll “Finance Constraint—collateral” 1=no obstacle 4=major obstacle
13. papr “Finance Constraint—paperwork” 1=no obstacle 4=major obstacle
14. hint “Finance Constraint—high interest rates” 1=no obstacle 4=major obstacle
15. spcn “Finance Constraint—special connections” 1=no obstacle 4=major obstacle
16. lekml “Finance Constraint—lack money to lend” 1=no obstacle 4=major obstacle
17. acfk “Finance Constraint—access to foreign banks” 1=no obstacle 4=major obstacle
18. acnb “Finance Constraint—access to non bank equity” 1=no obstacle 4=major obstacle
19. expf “Finance Constraint—export finance” 1=no obstacle 4=major obstacle
20. lesf “Finance Constraint—lease finance” 1=no obstacle 4=major obstacle
21. crd “Finance Constraint—credit” 1=no obstacle 4=major obstacle
22. lloan “Financial constraint—long term loans” 1=no obstacle 4=major obstacle
23. cmpa “Obstacles to competition—avoid taxes” 1=no obstacle 4=major
24. cmpb “Obstacles to competition—no duties” 1=no obstacle 4=major
25. cmpc “Obstacles to competition—foreign price” 1=no obstacle 4=major
26. cmpd “Obstacles to competition—domestic price” 1=no obstacle 4=major
27. cmpe “Obstacles to competition—violation of patents” 1=no obstacle 4=major
28. cmpf “Obstacles to competition—collude for credit” 1=no obstacle 4=major
29. cmpg “Obstacles to competition—receive subsidies” 1=no obstacle 4=major
30. cmph “Obstacles to competition—favored access to credit” 1=no obstacle 4=major
31. bl_reg “Business regulations” 1=no obstacle 4=major obstacle
32. cus_reg “Customs Regulations” 1=no obstacle 4=major obstacle
33. frk_reg “foreign exchange regulations” 1=no obstacle 4=major obstacle
34. env_reg “environmental regulations” 1=no obstacle 4=major obstacle
35. fir_reg “Fire regulations” 1=no obstacle 4=major obstacle
36. hit_reg “High taxes” 1=no obstacle 4=major obstacle
37. lab_reg “Labor regulations” 1=no obstacle 4=major obstacle