

Does Finance Fuel Competition?

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Abstract

This article highlights the relationship between the determinants of financial development and intensity of local competition in a country and attempts to extend the previous literature by applying quantile regression methods in order to better capture the outlook of the phenomenon. Using data on 144 countries, this cross-country study provides empirical evidence that four out of six components of financial development have a significant effect on the intensity of local competition. The findings suggest that financing through local equity market, venture capital availability, foreign direct investment and technology transfer and availability of financial services influence the level of local competition.

Keywords: Intensity of local competition, financial development, access to finance.

1. Introduction

It has become an unequivocal fact that firms in today's highly globalized economies are increasingly compelled to put issues related to competition in the centre stage of their strategy setting processes. Creating and fostering competitive advantages are regarded as indispensable factors for the health and sustainability of firms. In quest of powerfully employing innovative ways and means in all areas spanning from product and service creation to successful commercialization of these ideas and to design of internal processes and external relations etc. firms are severely challenged by various constraints. Although there are many factors affecting a firm's innovative and competitive capabilities, availability of and access to financial sources emerge as determining factors.

Godfrey (2008)'s approach to competition is by emphasizing the central role of competition in a market economy and its' effects culminating in innovation, productivity and growth of firms which ultimately lead to wealth creation and poverty reduction. He stresses that limited access to finance curb competition via making it difficult for new firms to raise capital needed for market entry and

competition with incumbent firms thus harming wealth creation and poverty alleviation in developing countries. Fonseka et al. (2013) conduct a study to investigate the effects of accessibility to different financial capital sources on the competitive advantages of firms in China and demonstrate that access to internal funds and external financing in the form of equities, bonds and equity-financed capital help firms gain competitive advantage.

This study attempts to investigate the effects of financial development on the intensity of local competition in a country. The role of financial development in intensifying local competition is analysed by investigating the effects of various components of firms' access to financial sources in a country such as financing through local equity market, ease of access to loans, venture capital availability, foreign direct investment and technology transfer, availability of financial services and affordability of financial services.

Examination of the intensity of local competition in relation to above-stated components of access to finance is conducted for 144 countries using data sourced from the Global Competitiveness Report (GCR) published by the World Economic Forum (WEF). The empirical results confirm that financing through local equity market, venture capital availability, foreign direct investment and technology transfer and availability of financial services significantly affect the intensity of local competition in a country.

The rest of the study is structured as follows. Section 1 introduces the research subject in a broader context by stating that the level of intensity of local competition is related to various components of financial development in a country. Section 2 presents a review of background research. In section 3, the research hypotheses are developed. Section 4 describes the data and methodology of the research. Section 5 presents the empirical results in detail and finally concluding remarks are expressed in section 6.

2. Literature Review

In today's capitalistic economies, growth ambitions of firms serve as an accelerator of innovation-driven activities and R&D investments, therefore, increase the level of competition among firms in general by inducing firms to formulate their strategies aimed more at the penetration of available growth channels. At this point, a clear distinction is to be made between growth opportunities and growth ambitions of firms. Mina et al. (2013) find evidence that R&D-intensive firms' demand for external capital is not higher than less R&D-intensive firms and their study stresses the fact that growth ambitions of firms affect demand for financing innovations.

Although determinants of the level of local competition intensity in a country may include various factors such as culture, education, socio-environmental and geo-political standing of the country etc., in order for firms to gain competitive advantage through innovation, financing dimension plays a critical role nonetheless. With a broad perspective on the issue of access to finance Mazucato (2013) asserts that financial markets reform is necessary to promote innovation and that considering the components of financial structure is an important factor in financial market reformation so as to design financial sources providing sustainable capital for value-creating innovative processes.

Innovative firm strategies and entrepreneurship in a country act as driving forces of competition among firms. Sources of finance and the access to these sources serve as interface fostering innovation and entrepreneurship and hence intensifying competitive environment. Given the importance of innovation and entrepreneurship as driving forces of competitive advantages, advanced economies and less developed economies of the world may have distinct financial market structures resulting in different types of financial constraints for firms in terms of access to finance.

Kerr and Nanda (2009) draw attention to the question of to what extent financial constraints are a problem for entrepreneurs in advanced economies. They mention financial constraints as an

essential factor effecting entrepreneurial potential around the world and conclude that for entrepreneurs to finance their start-ups, capital market depth is of significant importance. EU Commission Report (2014) titled “Factors Influencing Industrial Competitiveness in The EU”, points out that firms’ investment and innovation decisions and their quest for growth are related to their access to external financing and states that less financially constraint firms have higher export potential. Imperfections in the financial market may cause “financing gaps” which in turn limit firms investment and growth opportunities.

In addition to the importance of firms’ access to financial sources, relationships with financial intermediaries play a critical role in successfully carrying out day-to-day operations of firms. Working capital requirements of firms and issues such as cash management, customer relations and supply chain management require firms to have viable relationships with financial intermediaries. Lyandres and Palazzo (2015) affirm that firms make investment decisions in innovation while facing uncertainty in product markets and show that expected intensity of competition in future product markets affects firms’ cash holdings considering the degree of financial constraints firms face.

European Commission Flash Euro Barometer Report (2006) by Gallup Organization indicates that four out of ten SMEs surveyed in new member state zone experience difficulties completing their projects without a bank loan. Financial service providers’ consideration of SMEs as highly risk bearing enterprises adversely affects the health and functioning of SMEs and results in insufficient access to finance for SMEs to grow and further develop their operations. Mercieca et al. (2012) conduct a study by using a data set on SMEs for selected European Regions to empirically analyse the effects of competition and concentration on SMEs relationships with banks and their findings

suggest that the number of lending relationships are significantly impacted by the local banking market characteristics.

Claessens (2006) emphasizes that the importance of households' and firms' access to finance for economic prosperity of countries and refers to policy recommendations for countries to facilitate access to financial services.

Beck and Demirgüç-Kunt (2006) state that SMEs constitute a substantial share of private sector in many countries and their ability to access to external financing may increase their contribution to economic growth. Their study suggests that firms' access to financial sources is a critical element of a competitive business environment in which firms with different sizes compete on equal terms. Dalberg (2011) reiterates the notion of SMEs' limited access to financial sources and its consequences for growth and expansion of firms which ultimately lead to underperformance of economies in terms of growth, innovation and prosperity. Triki and Faye (2013) emphasize the importance of availability, accessibility and affordability of financial services for financial inclusion. The International Trade Centre (2009) guide for exporting SMEs advises SME managements on how to manage lending processes with banks and asserts the essential role of trade credits in boosting competitiveness of SMEs.

3. Hypothesis Development

Based on our discussion in the previous sections this study postulates that the intensity of local competition (ILC) as part of goods market efficiency is influenced by the components of financial market development.

The dependent variable, ILC (Intensity of local competition) is assessed on the basis of executive opinion surveys and it measures, in part, goods market efficiency in a country. The independent variables are as follows:

Financing through local (FTLEM): Refers to easiness of issuing shares on the stock market for companies to raise capital. Ease of Access to Loans (EATL): Indicates the easiness of obtaining a bank loan with only a good business plan and no collateral (WEF, GCR-2014-2015, p.543). Venture Capital Availability (VCAV): Refers to the easiness of finding venture capital for entrepreneurs with innovative and risky projects (p.543). Affordability of Financial Services (AFFS): Shows to what extent financial services are affordable for businesses (p. 543). Availability of Financial Services (AVFS): Shows to what extent wide range of financial products and services are provided to businesses by the financial sector. FDI and Technology Transfer (FDITT): Indicate that to what extent new technologies are brought to a country by foreign direct investment.

Therefore, the following hypotheses are developed:

H1: The level of financing through local equity markets (FTLEM) is positively associated with the level of ILC (Intensity of local competition).

H2: The level of ease of access to loans (EATL) is positively associated with the level of intensity of local competition.

H3: The level of venture capital availability (VCAV) in a country is positively associated with the level of ILC (Intensity of local competition)

H4: The level of FDI and technology transfer (FDITT) in a country is positively associated with the level of ILC (Intensity of local competition).

H5: The level of affordability of financial services (AFFS) in a country is positively associated with the level of ILC (Intensity of local competition).

H6: The level of availability of financial services (AVFS) in a country is positively associated with the level of ILC (Intensity of local competition).

4. Data and Research Methodology

The available literature emphasize the idea of positive association between diversity, availability and affordability of financial sources for firms and the intensity of local competition in a country. This article argues that access to finance provides a level playing field in an economy and hence vital for intensifying competition among firms.

The data set used for this study are obtained from the Global Competitiveness Report (2014-2015) issued by the World Economic Forum (WEF). In preparing the report the WEF uses data derived from executive opinion surveys and hard data from international agencies and national authorities and claims that the data represent the best available estimates at the time of the report was prepared (p.535). Responses to the executive opinion survey questions are assessed on a seven point Likert scale with the lowest possible score is one and the highest possible score is seven.

The dependent variable is the ranking value assigned to the assessment of the intensity of the local competition (derived from the executive opinion surveys). In this study we are using six variables from the global competitiveness index to assess their effects on the intensity of the local competition. These explanatory variables are considered to be representative of the factors of access to finance for firms: Financing through local equity market (FTLEM), ease of access to loans (EATL), venture capital availability (VCAV), foreign direct investment and technology transfer (FDITT), affordability of financial services (AFFS) and availability of financial services

(AVFS). Given all these variables, the final data sample includes 144 countries for which all the variables are available 2014 to 2015.

The research methodology used is the multivariable regression with ILC as dependent variable. In addition to multivariable regression quantile regression methods are used. Quantile regression as developed by Koenker and Bassett (1978) is an estimation method by which conditional quantiles are modelled as a function of independent variables. As an alternative econometric tool, quantile regression attempts to explain the variation in the conditional quantiles while traditional regression models estimate the variations in the conditional mean of the dependent variable. Therefore, the relationship between the variables are better captured by employing quantile regression which is not constrained by the analysis of the mean (Koenker, 2005).

In addition to multivariable regression analysis, this study uses quantile regression model to investigate the relationship between the intensity of local competition and the variables representing “access to financial sources for firms”.

Table 1 shows the descriptive statistics of all the variables used in this study. Table 2 is the correlation matrix table. Correlation matrix shows that most of the independent variable are highly correlated.

Table 1. Descriptive Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ILC	144	4.977907	.6638601	2.601164	6.371001
FTLEM	144	3.406606	.9531447	1.424694	5.698652
EATL	144	2.855866	.7576711	1.366893	5.076217
VCAV	144	2.762448	.7159508	1.474669	4.775331
FDITT	144	4.489971	.6560778	2.664101	6.369658
AFFS	144	4.249585	.8650339	2.025786	6.107397
AVFS	144	4.455142	.9261055	2.139046	6.491313

Table 2. Correlation Matrix

	ILC	FTLEM	EATL	VCAV	FDITT	AFFS	AVFS
ILC	1.0000						
FTLEM	0.6762	1.0000					
EATL	0.4503	0.7459	1.0000				
VCAV	0.4835	0.7832	0.9198	1.0000			
FDITT	0.6579	0.5554	0.5270	0.5800	1.0000		
AFFS	0.7081	0.7903	0.7789	0.8114	0.7000	1.0000	
AVFS	0.7798	0.7982	0.7181	0.7624	0.7419	0.9529	1.0000

5. Empirical Results

Country level multivariable regressions are conducted for the empirical examination of the hypotheses developed in the previous section. ILC ranks are regressed on the ranks of the various independent variables which are considered to be representative of “access to finance” for firms in a country. The multivariable and single variable regression results for the entire sample of 144 countries are shown in Table 3.

Four of the six variables are statistically significant for the entire sample of 144 countries. The R^2 of the model is 69%. Statistically significant variables are FTLEM, VCAV, FDITECH, and AVFS. For the variables EATL and AFFS, statistically insignificant results are obtained. FTLEM is significant at less than 1% level and supports hypothesis 1 which states the level of financing through local equity markets is positively associated with the level of ILC (intensity of local completion). VCAV is significant at less than 10% level but does not support hypothesis 3 which states that the level of venture capital availability in a country is positively associated with the level of intensity of the local competition. Empirical results show that the level of venture capital availability in a country is negatively associated with the level of intensity of local competition. FDITECH is significant at less than 5% level and this result empirically supports hypothesis 4 which posits that the level of FDI and technology transfer in a country is positively associated with the level of ILC. Hypothesis 6 is also supported by the results since AVFS is significant at less than

1% level. Therefore, we can conclude that the level of availability of financial services in a country affects the intensity of the local competition.

Table 3. Multivariable and Single Variable Regression Results

VARIABLES	(1) ILC	(2) ILC	(3) ILC	(4) ILC	(5) ILC	(6) ILC	(7) ILC
FTLEM	0.265*** (0.0831)	0.471*** (0.0444)					
EATL	-0.0678 (0.128)		0.395*** (0.0582)				
VCAV	-0.319* (0.182)			0.448*** (0.0646)			
FDITT	0.219** (0.0971)				0.666*** (0.0719)		
AFFS	-0.0690 (0.177)					0.543*** (0.0455)	
AVFS	0.516*** (0.168)						0.559*** (0.0423)
Constant	2.164*** (0.243)	3.373*** (0.169)	3.851*** (0.185)	3.739*** (0.188)	1.989*** (0.328)	2.669*** (0.202)	2.488*** (0.194)
Observations	144	144	144	144	144	144	144
R-squared	0.695	0.457	0.203	0.234	0.433	0.501	0.608

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The interpretation of multivariable regression outcomes may be problematical due to multicollinearity resulting from the high correlation between some of the independent variables. To alleviate this problem single variable regression analysis is conducted by taking one independent variable at a time. Single variable regression results reported in Table 3 through columns 2-7 demonstrate that all of the independent variables are significant at less than 1% level and therefore support all of these six hypotheses.

This study applies the quantile regression method to investigate “access to finance” factors influencing the intensity of the local competition in a country. This approach allows the examination of the different points of conditional distribution of the dependent variable ILC. By analysing how the linear correlation changes across various quantiles, this approach allows us to examine the relationship at different points of the conditional distribution of the dependent variable

ILC. Quantile regression results are shown in Table 4 through the columns 2-6. Quantile regressions are estimated for the quantiles: 0.10, 0.25, 0.50, 0.75, and 0.90 in addition to multivariable regression estimation. The result is five quantile regressions and five quantile regression coefficients for each of the independent variables.

While the results of the multivariable regression suggest that there is a positive association between FTLEM and ILC, quantile regression results show that the FTLEM is significant at 50th and lower quantiles. The EATL is only significant at the 50th quantile at less than 10% level. According to multivariable regression results, VCAV is significant at less than 10% level, but the quantile regression results indicate that VCAV is significant at lower quantiles (10th) and with negative coefficients. The FDITT is significant at the 50th and lower quantiles. Multivariable and quantile regression models both give statistically insignificant results for AFFS. AVFS is significant at less than 1% level between the upper and the lower quantiles.

Table 4. Quantile Regression Results

VARIABLES	(1) ILC	(2) q10	(3) q25	(4) q50	(5) q75	(6) q90
FTLEM	0.265*** (0.0617)	0.470** (0.180)	0.365*** (0.115)	0.182** (0.0778)	0.113 (0.0992)	0.143 (0.126)
EATL	-0.0678 (0.108)	0.122 (0.241)	0.0132 (0.219)	-0.270* (0.144)	-0.107 (0.143)	-0.0217 (0.180)
VCAV	-0.319** (0.125)	-0.635** (0.281)	-0.444 (0.308)	-0.0165 (0.181)	-0.172 (0.199)	-0.157 (0.248)
FDITT	0.219*** (0.0719)	0.221 (0.151)	0.279*** (0.105)	0.202*** (0.0765)	0.164 (0.125)	0.0592 (0.223)
AFFS	-0.0690 (0.135)	-0.331 (0.244)	-0.214 (0.199)	-0.0322 (0.175)	-0.000847 (0.206)	0.249 (0.253)
AVFS	0.516*** (0.126)	0.646*** (0.197)	0.543*** (0.159)	0.498*** (0.145)	0.553*** (0.199)	0.238 (0.314)
Constant	2.164*** (0.221)	1.862*** (0.466)	1.900*** (0.355)	2.191*** (0.236)	2.379*** (0.344)	3.062*** (0.519)
Observations	144	144	144	144	144	144
R-squared	0.695					

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The results of the quantile regression are represented graphically by the Figure 2. The horizontal axis of the diagrams represent the quantiles. The vertical axis represents the estimated coefficients. Three lines are included in the diagrams. The middle line represents the estimated co-efficient. The confidence intervals at 10% level are represented by the two lines of the each side of the estimated co-efficient. The curved line represents the quantile regression estimates.

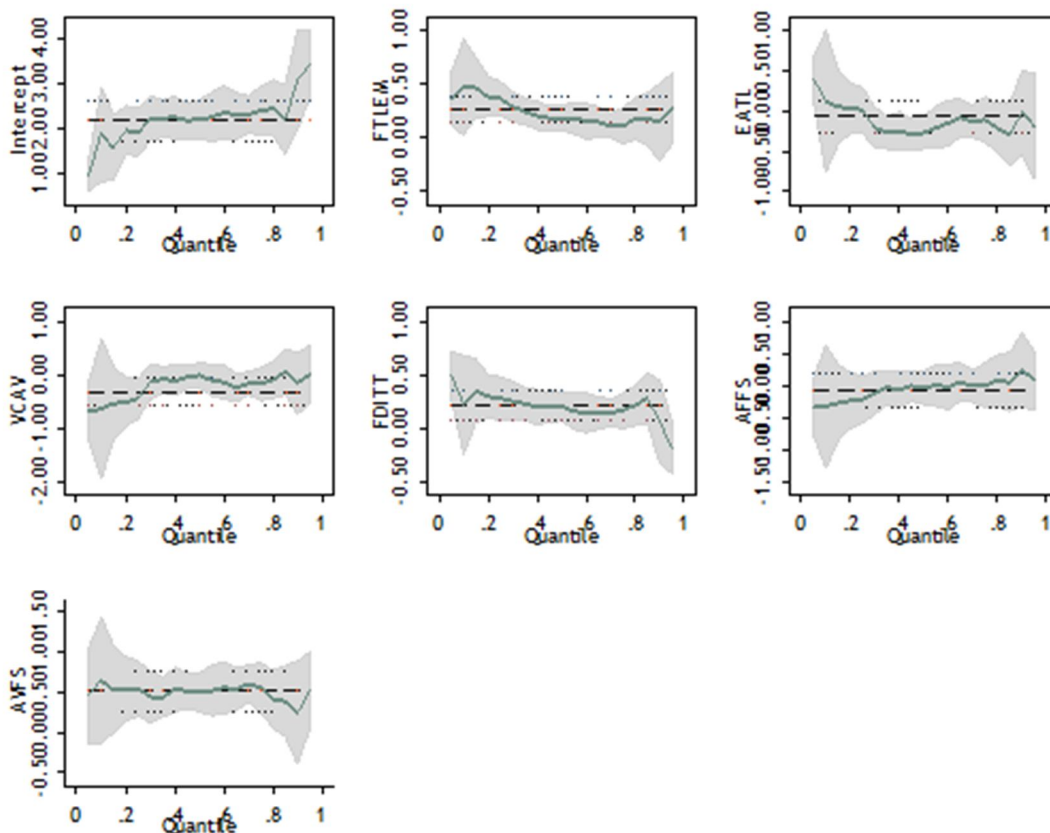


Figure 2. Quantile Regression Graph

6. Concluding Remarks

The purpose of this paper is to investigate the effect of access to finance on the intensity of the local competition. The ILC is considered as an engine for firm growth, innovation and prosperity to

flourish. The main focus is on the role of financing factors. The empirical section is based on the data collected on 144 countries from the Global Competitiveness Report 2014-2015 published by the WEF. By using quantile regression analysis together with the multivariable analysis this study attempts to capture more complete outlook of the phenomenon. As a result, this study finds that financing through local equity market, venture capital availability and foreign direct investment and technology transfer are significant in the multivariable regression, but the quantile regression reveals that these variables are significant at especially mean and lower quantiles of ILC. Availability of the financial services is significant excluding the highest (95th) quantile of the ILC.

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