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Mikael C. Bergbrant, St. John's University
Delroy M. Hunter, University of South Florida
Patrick J. Kelly, New Economic School of Moscow
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Does Product Market Competition Cause Capital Constraints?

At the very center of Schumpeter's (1934, 1942) notion of creative destruction is firms' access to bank capital, which helps to fund the innovation in competitive product markets that drives out less productive firms in favor of those with more profitable ideas. However, competition is a two-edged sword and may result in firms being unable to fund all of their otherwise economically profitable investments. Using unique survey data from 58 countries, Bergbrant, Hunter, and Kelly (2016) find that product market competition increases capital constraints and has a greater effect than banking sector competition. Further, we show that quantity-of-capital constraints negatively impact firm growth.

Capital & creative destruction

At the very center of Schumpeter's (1934, 1942) notion of creative destruction is firms' access to bank capital, which helps to fund the innovation in competitive product markets that drives out less productive firms in favor of those with more profitable ideas. While product market competition may be the fundamental driver of the innovation envisioned by Schumpeter, it may also impede access to the very source of capital that is supposed to fund that innovation. More intense product market competition can affect firms' ability to finance their projects either by increasing the price of financing or by inducing capital constraints, whereby firms are unable to obtain the quantity of capital needed to fund all their positive net present value projects.

Recent research has focused on the price side of financing, showing that product market competition increases the cost of equity (Hou and Robinson, 2006) and the cost of debt (Valta, 2012). In this brief we examine the quantity side of financing; that is, whether product market competition increases capital constraints.

Is it not obvious that competition causes capital constraints?

Actually, no. There is a familiar argument that firms are reluctant to disclose commercially valuable information when competitors are more likely to exploit this information. Theory predicts that it is not optimal for creditors to respond to the resulting asymmetric information by raising interest rates; instead, restricting capital is more appropriate (Stiglitz and Weiss, 1981). However, competition may have the very opposite effect because a competitive environment lowers owners' cost of monitoring and measuring managerial performance. Theory and recent empirical tests indicate that lower cost of monitoring managers induces greater disclosure by owners.

Whether or not product market competition makes banks restrict the supply of loans is arguably more important than whether it influences the cost of debt. Greenwald, Stiglitz, and Weiss (1984) show that firms' investment behavior is not particularly sensitive to the interest rates they pay, consistent with the notion that increases in the cost of debt may reduce investment, but only at the margin; i.e., projects change from generating economic profits to generating economic losses (net present value changes from positive to negative). By contrast, increased capital constraints can lead to underinvestment by forcing firms to abandon projects which generate economic profits (net present values are positive), thus hindering investment and preventing firm innovation and growth (see Harford and Uysal, 2014).

What does the research tell us?

Recent research by Bergbrant, Hunter, and Kelly (2016) uses survey data obtained from the World Bank's World Business Environment Survey, conducted among non-financial firms from around the world. Capital constraints are the response to a question about the extent of the obstacle to operations and growth posed by capital constraints that managers and owners rank from 1 (No Obstacle) to 4 (Major Obstacle). Competition is represented by an index constructed from eight individual forms of competition reported by firms.

The empirical evidence indicates that the intensity of product market competition significantly increases capital constraints. Table 1 shows the marginal effects of a change in the intensity of competition on capital constraints. For instance, the first row shows that a small (instantaneous rate of) increase in product market competition leads to an increase in the likelihood that capital constraints are a "major obstacle" (4 on a four-

point scale) at a rate of 18.9%. Similar results hold when competition is assessed at a one-standard-deviation (3rd row) increase or when competition changes from 0 to 1 on a version of our competition index which ranges from 0 to 1 (5th row).

Table 1: Effect of competition on capital constraints

For a change of:	No obstacle (1)	Minor obstacle (2)	Mod. obstacle (3)	Major obstacle (4)
Marginal	-0.147	-0.052	0.010	0.189
p-value	(0.000)	(0.000)	(0.062)	(0.000)
+SD	-0.042	-0.017	0.000	0.059
p-value	(0.000)	(0.000)	(0.925)	(0.000)
0 to 1	-0.145	-0.059	0.008	0.196
p-value	(0.000)	(0.000)	(0.165)	(0.000)

Note: The table reports the marginal effects "for a change of" product market competition of varying amounts on firms responding that capital constraints pose one of the four levels of "obstacle" for their operations.

The above results are qualitatively similar when the competition index is replaced by any one of its eight individual components. In addition, competition increases not only a measure of general capital constraints, as employed in the above analysis, but also specific forms of capital constraints. These include the credit constraints that firms experience when, as a precondition for lending, banks require that borrowers have special connections in the banking sector, pledge collateral, satisfy banks' bureaucratic need for business documents, and pay bribes to corrupt bank officials. Further, the evidence is not unique to domestic bank capital as more intense product market competition also impedes firms' access to nonbank equity, foreign bank capital, special export financing, and lease financing.

To further validate our main result we account for two well-established strands of research that contend that banking sector competitiveness is among the most important determinants of access to credit and that banking sector structure can also affect the competiveness of non-financial firms' industries. The evidence reported in Table 2 shows that while (one of three measures of) banking sector competition and the degree of bank freedom affect capital constraints, in general the regulatory structure of the banking sector does not. More important, our main finding is unchanged when controlling for banking sector structure. Finally, it is important to note that in all our models we control for any cost-of-debt (higher-interest-rate) effects.

Table 2: Accounting for banking sector structure

Competition (10 separate models)	+ve signif.
Lerner bank competition index	+ve, signif.
Bank concentration ratio	insignif.
Boone indicator of banking sector	insignif.
private credit as a fraction of GDP	insignif.
restrictions on nonbank activities	insignif.
fraction of bank applications denied	insignif.
bank freedom from gov't interference	-ve, signif.
existence of a credit registry	insignif.
foreign bank share of banking system	insignif.
government share of banking system	insignif.

Note: We augment our main model with the above banking sector variables, one at a time, to determine their impact on the significance (signif. or insignif.) of product market competition.

Capital constraints hurt firms' growth and so we expect our measure of capital constraints to be negatively associated with growth. We confirm this in the data, after controlling for the direct impact of competition on growth. We also find that the quantity-of-capital effect has a greater impact on expected firm growth than the cost-of-capital effect.

Conclusion

Our research indicates that the intensity of product market competition increases capital constraints even in the presence of controls for banking sector competition. Our work suggests several policy recommendations. First, the

implementation of a product-market competition policy, for instance by several Central and Eastern European countries in the 1990s (Fingleton et al., 1996; Dutz and Vagliasindi, 2000), should contemplate the possibility that such action is likely to have negative externalities for firms' access to capital. Second, banking sector reforms aimed at creating a more competitive banking system in order to improve access to capital should not be pursued in isolation and should take into consideration the existing competitiveness of the product market. Third, given that the quantity-of-capital effect has a greater impact on firm growth than the cost-of-capital effect, policymakers should exert at least as much effort in easing quantity constraints as they do to reduce the cost of capital.

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Mikael Bergbrant

St. John's University
bergbram@stjohns.edu
www.stjohns.edu/academics/bio/mikael-c-bergbrant-phd

Dr. Mikael Bergbrant is an Assistant Professor in the department of Economics and Finance at St. Johns University. He holds an MBA and a Ph.D. from the University of South Florida and is a CFA charter holder.

His research interests are in the areas of international finance and risk management. He has accepted/published articles in several influential journals such as the Journal of Financial Intermediation, Financial Management, and the Journal of Banking and Finance. Dr. Bergbrant strongly believes in the value of presenting his own, and discussing others, research and he often participates in academic conferences.

Delroy M. Hunter

Muma College of Business at the University of South Florida
Dhunter2@usf.edu
www.usf.edu/business/contacts/hunter-delroy-aspx

Professor Hunter holds a Ph.D. from the University of Warwick (U.K.), where he was a Commonwealth Scholar. He is currently the Serge Bonanni Professor of International Finance at the University of South Florida. His research, which focuses on international finance, investments, financial intermediation, and empirical asset pricing, appears in the Journal of Financial Economics, Accounting Review, Journal of Business, Journal of Financial Intermediation, and Financial Management. In addition, his research has won the Goldman Sachs Quant Award for Research in Investments at the Western Finance Association conference and has been a semi-finalist for best paper award at several academic conferences. He is an Associate Editor for the Quarterly Journal of Finance & Accounting. He is also actively community-engaged, through the provision of consultancy and advisory services to several entities in the United States and abroad.

Patrick J. Kelly

New Economic School (NES)
pkelly@nes.ru
www.patrickjkelly.info

Patrick J. Kelly is an Associate Professor of Finance at the New Economic School in Moscow. Professor Kelly earned his Ph.D. in Finance and Master Degree in Economics from the W.P. Carey School of Business at Arizona State University. He has been a visiting scholar at the University of Texas at Austin, a visiting lecturer in the Ph.D. program at the University of Melbourne and an Assistant Professor at the University of South Florida where he won awards for both his teaching and research.

His research interests are in the area of empirical asset pricing, market efficiency, behavioral finance, and corporate governance. He has published articles on these topics in top academic journals including the *Review of Financial Studies*, the *Journal of Banking and Finance* and *Financial Management*.

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