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Equity market liberalization and firm growth

Thomas O'Connor*

Department of Economics, Finance and Accounting, National University of Ireland Maynooth, Maynooth, Co. Kildare, Ireland

Abstract

In a sample of 686 investable firms from 26 emerging market countries, I show that equity market liberalizations do not result in an increase in externally-financed growth rates for participating firms. In fact I find mostly to the contrary. These findings are in line with recent work which shows that firms issue less and not more equity capital post-liberalization, and suggest the gains from equity market liberalizations may not be attributable to a reduction in financing constraints.

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1. Introduction

The decision by countries to liberalize their equity markets has attracted much academic attention. With some exceptions (see Rodrik, 1998), this line of inquiry has shown equity market liberalizations in a good light. For example, at the firm-level, equity market liberalizations serve to increase investment and improve operating performance (see Bae and Goyal, 2010; Mitton, 2006), heighten firm visibility, improve corporate governance (see Bae et al., 2006), and increase firm value (see Bae and Goyal, 2010; Mitton and O'Connor, 2012; O'Connor, 2012). At the country-level, equity market liberalizations result in increased investment and economic growth (see Bekaert et al., 2005, 2007, 2010).

However, the central theoretical prediction of equity market liberalizations has largely been ignored in empirical work. Equity market liberalizations refer to instances where restrictions on the foreign ownership of domestic equity are removed. As a result, we should then expect to observe greater equity issuance, potential changes in debt issuance and shifts in debt maturity structure, and eventually a relaxation in financing constraints, post-liberalization.[1] While the literature provides *indirect* evidence to suggest this is the case (e.g. the "investable premium" of Mitton and O'Connor (2012) and the improvement in operating performance experienced by investable firms as documented by Mitton (2006) are both consistent with a relaxation in financing constraints), recent *direct* tests suggest this may not be so. Flavin and O'Connor (2010) and McLean et al. (2011) examine the capital issuance activity of investable firms. Surprisingly, neither documents a significant *increase* in equity issuance once firms become investable. Flavin and O'Connor (2010) uncover no significant change in net equity issuance. McLean et al. (2011) document a significant *decrease*.[2] Together, these findings suggest if anything, equity market liberalizations result in a *decrease*, and not an *increase* in the use of external equity financing, but does result in increased firm growth, as shown by Mitton (2006). Therefore, the findings of Mitton (2006), Flavin and O'Connor (2010), and McLean

* Tel.: +35317086667.
E-mail address: thomas.g.oconnor2012@nuim.ie

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[1] While there is no direct theoretical link between equity market liberalizations and corporate debt issuance, equity market liberalization may promote greater debt issuance e.g. greater use of long-term debt, if investors are now more willing to invest in firms that now have foreign investors. Schmukler and Vesperoni (2006) document a shift toward short-term debt for firms after stock market liberalizations. Flavin and O'Connor (2010) find to the contrary using a firm-specific (and presumably less noisy) measure of equity market liberalizations i.e. the investable measure.

[2] The difference in the findings between the studies of Flavin and O'Connor (2010) and McLean et al. (2011) may be attributable to the different sample periods examined by each. The former examine the capital issuance behavior of investable (and cross-listing) firms up to and including the year 2000. The latter include all years up to and including 2008.

et al. (2011) suggest that investable firms grow, and they finance this growth mainly using internal and not external funds. In this paper, I test this proposition. That is, I examine the link between firm growth and the contribution made by external finance to that growth around the time in which firms first become investable.

To do so, I begin with the constrained or predicted growth rates of Demirguc-Kunt and Maksimovic (1998). These measures *predict* the maximum growth rate that a firm can achieve given access to internal funds and short-term external debt financing only (denoted as SFG_t), or internal funds, short and long-term debt financing (denoted as SG_t), respectively. With these *predicted* growth rates, I calculate the difference between a firms' *actual* and *predicted* growth rate, since the difference is an indirect measure of access to external financing for firms, and is a direct measure of a firm's externally-financed growth rate (EFG). Equity market liberalizations should result in an increase in externally-financed growth rates for investable firms. In this paper, I test this proposition.

To do so, I form a panel of 686 investable firms, and 2104 firms in total from 26 emerging market countries. Using a series of firm-fixed effects regressions which span the period from 1980 to 2000, I document a *decrease* in externally-financed growth rates for investable firms. My findings, together with those of Flavin and O'Connor (2010) and McLean et al. (2011), suggest the *relative* contribution made by external financing (i.e. long-term debt and equity financing) vis-à-vis internal financing, to firm growth, as documented by Mitton (2006), is less because firms use less external financing once they become investable.

Collectively, these findings serve to better inform our understanding of equity market liberalizations. First, they do not suggest firms do not benefit from becoming investable. Ample evidence exists to suggest otherwise. What they do suggest is the source(s) of the gains documented in the literature does not result from greater risk sharing and a decline in financing constraints. The gains result most likely from improvements in a firm's information environment resulting from corporate governance improvements (see Bae et al., 2006). The experience of investable firms contrasts with the experience of some firms cross-listing in the U.S. because the "cross-listing premium" is a function of, among others, improved governance (see Doidge et al., 2004, 2009; Lang et al., 2003), reduced financing constraints (see Reese and Weisbach, 2002; Lins et al., 2005; Khurana et al., 2008), and greater recognition (see King and Segal, 2009). Finally and as already alluded to by McLean et al. (2011), my finding's do suggest that investable firms use less external finance once they become investable because they are likely to be mature firms with little need for external financing. The fact that firms continue to grow, while simultaneously using less external financing once they become investable, suggests this is likely to be the case. Investability does not reduce financing constraints because investable firms are, at least around the time of first becoming investable, unlikely to be financially-constrained and in need of additional external finance.

The paper proceeds as follows. In the next section, I outline measures of externally-financed growth. Section 3 describes the sample of firms. Section 4 presents and discusses the empirical findings. Section 5 presents some robustness exercises, while Section 6 concludes.

2. Measures of externally financed growth

To construct measures of externally-financed firm growth rates, I adopt Demirguc-Kunt and Maksimovic's (1998) application of a firm-based financial planning model. This approach has been used by, among others, Khurana et al. (2008). The following draws heavily on Khurana et al. (2008). To construct a firm's externally-financed growth rate (EFG) at time t involves two steps. In the first step, a firm's "constrained or predicted growth rates" is calculated. These growth rates represent the maximum growth that a firm can achieve if the firm relies solely on say, internal funds, internal funds and short-term debt, and internal funds and short and long-term debt financing, respectively. The second step involves using these "constrained or predicted growth rates" to calculate a firm's externally-financed growth rate. Externally-financed growth represents the difference between a firm's *realized* growth rate (normally measured yearly using either sales or asset growth) and the firm's "constrained or predicted growth rate" (Step 1). If equity market liberalizations result in greater externally-financed growth rates for firms, then we would expect to see an increase in the difference between a firm's realized growth rates and their "constrained or predicted growth rate".

Demirguc-Kunt and Maksimovic (1998) build on the "percentage of sales" approach to financial planning and derive three "constrained or predicted growth rates", which they denote as IG_t, SFG_t, and SG_t. IG_t is the maximum growth that a firm can achieve if it relies solely on internal funds. SFG_t is the maximum growth rate that a firm can attain by using both internal cash-flows and short-term debt. SG_t is the maximum growth rate achievable using internal funds, short and long-term debt external financing. I use the latter two.[3]

Begin with the expression for the external financing need (EFN) of a firm, which is:

$$EFN_t = [g_t \times Assets_t] - [(1 + g_t) \times (E_t \times b_t)] \quad (1)$$

The external financing need of a firm at time t is the difference between the product of assets at time t ($Assets_t$) times' sales growth at time t (g_t) and the product of earnings after interest and taxes (E_t), the proportion of earnings retained for reinvestment at time t (b_t), and 1 plus sales growth at time t. A firm has an external financing need if $[g_t \times Assets_t] > [(1 + g_t) \times (E_t \times b_t)]$, i.e. the required investment of a firm growth at rate $g_t[g_t \times Assets_t]$ is not covered by internal funds $[(1 + g_t) \times (E_t \times b_t)]$. Using this expression for a firm's external financing need, we can then continue to derive two measures of constrained firm growth. The first, denoted as SFG_t, is the maximum growth rate that a firm can attain by using both internal cash-flows and short-term debt. If we further assume a constant short-term debt to assets ratio to ensure a feasible growth estimate for the firm, then SFG_t

[3] For a variety of reasons, emerging market firms typically use short-term debt as their major source of external financing (see Opazo et al., 2009).

is obtained by setting the retention ratio (b_t) in the expression for a firm's external financing need to 1 i.e. the firm pays no dividend. Solving for g_t, the implied growth rate (SFG_t) is given by:

$$\left(SFG_t = \frac{ROLTC_t}{(1 - ROLTC_t)}\right) \tag{2}$$

$ROLTC_t$ is the ratio of earnings after interest and taxation ($EAIT_t$) to long-term capital.[4] Long-term capital is the assets of the firm not financed using short-term debt and is calculated by multiplying a firm's total assets by 1 minus the ratio of short-term liabilities to total assets. SFG_t refers to a firm's maximum short-term financed growth rate.

The second constrained growth rate denoted as SG_t is the maximum growth rate achievable using internal funds, short and long-term debt to maintain a constant book leverage ratio (i.e. total debt to assets). Further assume the following. First, the payout ratio remains at zero; second, the firm does not issue equity or increase leverage beyond the realized level; and third, the retention ratio (b_t) is 1. The estimate of SG_t is then estimated by first; replacing total assets in the expression or external financing need with book equity, and second, setting Eq. (1) to zero. Solving for $g_t(SG_t)$ yields:

$$\left(SG_t = \frac{ROE_t}{(1 - ROE_t)}\right) \tag{3}$$

ROE_t is the return on equity. SG_t is the maximum sustainable growth rate.

With the constrained or predicted growth rates defined, the second and final step involves calculating a firm's externally-financed growth rate. Externally-financed growth rates (EFG) for a firm in each year is given by the difference in the annual realized sales (or asset) growth rate less the constrained or predicted growth rates just outlined. These measures of external-financed growth examine if each firm's growth (using realized sales or asset growth) is greater than that *predicted* by the maximum short-term financed growth rate (SFG_t) or the maximum sustainable growth rate (SG_t). The greater the difference between the actual and predicted growth rate, the greater is that part of growth externally-financed. Following Khurana et al. (2008), I denote these two externally-financed growth rates as Excess SFG and Excess SG. Both of these measures serve as dependent variables in our empirical setup.

The benchmark empirical setup involves regressing each of these two measures of externally-financed growth on the investable dummy (a firm specific measure of equity market liberalizations), a set of firm-level control variables, and time and firm fixed effects. The firm-level controls are dividend payout (DIV/TA), firm performance (profitability (EBIT/TA) and asset turnover (NS/NFA)), firm size (SIZE), growth opportunities (NFA/TA), and a measure of a firm's reliance on long-term debt (LTD/TA). The reason for the inclusion of each is as follows. Dividend paying (DIV/TA), profitable firms (EBIT/TA), with notable asset turnover (NS/NFA) have sizable internal funds, and as a result, less of a reliance on external funds. Typically these firms have low externally-financed growth rates. In contrast, small firms (SIZE) with sizable growth opportunities (NFA/TA), funded using long-term debt (LTD/TA), have higher externally-financed growth rates.[5] DIV/TA is total dividends to total assets, profitability is earnings before interest and taxation to total assets (EBIT/TA), and asset turnover is the ratio of net sales to net fixed assets (NS/NFA). I measure firm size (SIZE) as the natural log of total assets, expressed in real U.S. dollars. Reliance on long-term debt is the ratio of long-term debt divided by lag total assets (LTD/TA). Finally, growth opportunities are the ratio of net fixed assets to total assets (NFA/TA). I source all firm-level financial information from Worldscope for each year from 1980 to 2000. I exclude financial firms.

To examine the relationship between equity market liberalization and externally-financed growth rates, I estimate the following:

$$\begin{aligned}\text{Excess } SG_{it} = {} & \beta_1 \text{INVESTABLE}_{it} + \beta_2\left(\frac{DIV_{it}}{TA_{it}}\right) \\ & + \beta_3\left(\frac{EBIT_{it}}{TA_{it}}\right) + \beta_4\left(\frac{NS_{it}}{NFA_{it}}\right) \\ & + \beta_5 SIZE_{it} + \beta_6\left(\frac{LTD_{it}}{TA_{it-1}}\right) \\ & + \beta_7\left(\frac{NFA_{it}}{TA_{it}}\right) + \alpha_t + \alpha_i + \varepsilon_{it}\end{aligned} \tag{4a}$$

$$\begin{aligned}\text{Excess } SFG_{it} = {} & \beta_1 \text{INVESTABLE}_{it} + \beta_2\left(\frac{DIV_{it}}{TA_{it}}\right) \\ & + \beta_3\left(\frac{EBIT_{it}}{TA_{it}}\right) + \beta_4\left(\frac{NS_{it}}{NFA_{it}}\right) \\ & + \beta_5 SIZE_{it} + \beta_6\left(\frac{LTD_{it}}{TA_{it-1}}\right) \\ & + \beta_7\left(\frac{NFA_{it}}{TA_{it}}\right) + \alpha_t + \alpha_i + \varepsilon_{it}\end{aligned} \tag{4b}$$

Where as well as the variables described earlier, α_t and α_i are time and firm-fixed effects.[6] INVESTABLE_{it} is a firm-specific measure of equity market liberalizations, that is, it is a 0/1 dummy which is 1 if the firm in deemed investable, and 0 otherwise. I expect β_1 to be positive if equity market liberalizations result in enhanced externally-financed growth rates.

[4] I'm forced to use earnings before interest and taxation in place of earnings after interest and taxation expense because Worldscope coverage of interest and taxation expense for emerging market firms is limited.

[5] As pointed out by Khurana et al. (2008), growth opportunities decrease in the ratio of net fixed assets to total assets (NFA/TA). Hence, I would expect to find a negative relationship between externally-financed growth and NFA/TA.

[6] I find that my conclusions remain unaltered if I cluster by country or by country and time (see Petersen, 2009; Thompson, 2011). The standard errors clustered by country and country and time tend to be larger than the standard errors clustered by firm alone.

3. Sample description

I begin with all 2784 firms from the major markets of the IFC Emerging Market Database (EMDB) that the IFC deem investable between 1980 and 2000. I measure the openness of a firm's stock to foreign investors using the "investable" measure provided by the EMDB.[7] The IFC designates a firm as investable if its stock is free from both country-level and firm-level restrictions on foreign investment. The IFC also require that each firm has sufficient size and liquidity to be truly available to foreign investors. I define a firm as investable in a given year if the firm's stock appears in the IFC investable index by December of that year.

I include a firm in the final sample if it has financial data available in the Worldscope database and satisfies a number of minimum-data requirements. First, I require that each investable firm has financial data available at least one year before and one year after the year in which they are first deemed investable. Second, I require that each firm that never becomes investable has financial data available one year either side of the median year in which firms are first investable in their respective countries. Once I impose these data requirements, I lose all firms from Egypt, Jordan, Morocco, Slovakia, and Zimbabwe.

I present the final sample in Table 1. It consists of 686 investable firms from twenty six countries. The total number of noninvestable firms is 1418, which added to the number of investable firms' results in a final sample of 2104 firms, or 13,821 firm-year observations. Table 1 presents, by country, the number of investable (# Inv) and noninvestable (# NI) firms, the number of firm-year observations (# Obs), and the total number of firms (# Total). The number of firms by varies significantly, ranging from a minimum of 7 in Russia to a high of 298 in Malaysia. Malaysia provides the greatest number of firm-year observations with 2242, or 16.22% of the total firm-year observations. Korea (89) provides the largest number of investable firms, while Hungary provides a single investable firm. The final sample covers the period from 1980 to 2000. The median investable firm in my sample first becomes investable in 1990 (see column labeled "First Invest" in Table 1). Firms from, among others, Korea (1981) and Portugal (1986) become investable much earlier. Firms from the Czech Republic (1997) and Russia (1997) become investable much later.

4. Findings

Table 2 compares the mean and median excess growth rates of investable firms before and after they first become investable. Excess growth is Excess SG and Excess SFG, and I calculate both using either sales or asset growth. I outline these measures in the top rows of Table 2. In the remaining rows of Table 2, I calculate the proportion of investable firms who rely on external financing, before and after they first become investable. The proportion is the number of firms in the sample of investable firms whose median growth rate exceeds their median SG (or SFG), divided by the number of firms in the sample. These summary measures suggest that neither the mean nor median investable firm experiences a significant change in their externally-financed growth rates once they become investable. However, I do find the proportion of investable firms who rely on external financing falls once they become investable. Using Excess SG, the proportion of firms who rely on external financing falls from 0.28 in the pre-investable period to 0.17 in the post-investable period. These univariate comparisons suggest if anything, investable firms use less external-financing, and experience no significant increase in the proportion of their growth financed-externally once they become investable. Interestingly, the proportion of soon to be investable firms using external financing is low. If the proportion is low because firms are financially constrained, and if equity market liberalizations serve to relax these financing constraints, then I would expect to observe an increase in externally-financed growth rates once firms become investable. If, on the other hand, investable firms are not financially-constrained, but mature firms with little need for external-financing, then equity market liberalizations are likely to have little or no impact on their externally-financed growth rates. From Table 3 onwards, I explore these possibilities further.

Table 3 contains the coefficient estimates from estimating Eqs. (4a) and (4b), with and without time fixed effects.[8] I also present estimates of Eqs. (4a) and (4b), where I calculate the dependent variable using asset growth (and not sales growth as before). Columns 1–4 contain the coefficient estimates when Excess SG is the dependent variable. The remaining columns (5–8) use Excess SFG. The coefficient estimates suggest that irrespective of the dependent variable employed (Excess SG or Excess SFG), the measurement of external financed growth (using sales or asset growth), or given the inclusion or exclusion of time fixed effects, the coefficient estimates on the investable dummy are negative, and always statistically different from zero.[9] The coefficient estimates range from −0.047 to −0.122 which suggest if anything, and contrary to expectations, equity market liberalizations result in a *decrease* in externally-financed growth rates. These findings suggest the growth effects associated with stock market liberalizations, documented by among others, Mitton (2006), are not the result of a relaxation in financing constraints.[10] Recent work by Flavin and O'Connor (2010) and McLean et al. (2011) corroborate my findings. Both find that investable firms do not issue more, and sometimes less, equity

[7] Amongst others, Mitton and O'Connor (2012), Flavin and O'Connor (2010), and McLean et al. (2011) all use the investable firm-specific measure of equity market liberalizations.

[8] Khurana et al. (2008) estimate Eqs. (4a) and (4b) with firm fixed effects but without time fixed effects. When I exclude time fixed effects, the coefficient estimates tend to be much larger, and the standard errors much smaller.

[9] I also estimate a series of pooled ordinary least squares estimates with country, time, and industry fixed effects included (as Khurana et al. (2008) also do). When I do so, I find that my conclusions are qualitatively unchanged. The estimates are available from me upon request.

[10] The analysis presented in Gupta and Yuan (2009) suggest that equity market liberalizations do reduce financing constraints.

Table 1
Sample description.

	Sample description				Key date	Financial development, country disclosure, governance and shareholder rights indicators					Investable single and dual-class share firms	
	# I	# NI	# Total	# Obs	First invest	DCPS	MCAP	ACC	GOV	SR	Invest & SC	Invest & DC
Argentina	17	8	25	180	1988	0.239	0.584	45	1.036	3	7	10
Brazil	37	48	85	567	1990	0.347	0.376	54	(0.091)	5	2	35
Chile	25	33	58	431	1992	0.635	0.800	52	6.181	5	22	3
China	28	82	110	533	1991	1.246	0.538	–	(2.343)	1	1	27
Colombia	7	8	15	126	1990	0.269	0.115	50	(3.403)	4	6	1
Czech Rep.	4	13	17	62	1997	0.540	0.214	–	4.650	4	4	0
Greece	34	59	93	701	1986	–	0.990	55	4.342	3	20	14
Hungary	1	8	9	50	1993	0.322	0.258	–	5.162	2	1	0
India	49	198	247	1111	1990	0.288	0.321	57	(1.042)	4	49	0
Indonesia	31	75	106	729	1990	0.219	0.179	–	(4.186)	4	5	26
Israel	10	11	21	129	1993	0.869	0.581	64	4.319	3	10	0
Korea	89	139	228	1598	1981	1.010	0.372	62	2.992	4	89	0
Malaysia	82	216	298	2242	1981	1.406	1.299	–	2.460	4	82	0
Mexico	29	29	58	456	1981	0.130	0.216	60	(0.676)	2	7	22
Pakistan	16	55	71	433	1993	0.298	0.108	–	(4.889)	5	15	1
Peru	12	11	23	120	1992	0.259	0.198	38	(1.740)	4	2	10
Philippines	23	36	59	357	1991	0.444	0.689	65	(0.662)	4	17	6
Poland	13	17	30	148	1994	0.278	0.191		4.117	2	13	0
Portugal	16	19	35	291	1986	1.398	0.573	36	7.359	3	12	4
Russia	5	2	7	28	1997	0.119	0.150	–	(4.151)	4	5	0
Sth Africa	28	53	81	905	1981	0.289	0.066	70	1.721	5	23	5
Sri Lanka	10	1	11	68	1994	1.389	1.602	–	(2.005)	4	10	0
Taiwan	58	110	168	897	1989	–	–	65	5.291	5	57	1
Thailand	46	148	194	1331	1988	1.084	0.244	–	1.622	4	2	44
Turkey	12	35	47	40	1988	0.237	0.350	51	(1.518)	4	12	0
Venezuela	4	4	8	288	1996	0.120	0.067	40	(2.921)	2	3	1
			Total				Median					Total
	686	1418	2104	13,821	1990	0.310	0.321	54.5	0.473	4	476	210

The table reports summary statistics of the sample by country. Investable dates are taken from the Emerging Markets Database (EMDB). # Obs is the number of firm-year observations; # I is the number of investable firms; # NI is the number of non-investable firms, and # Total is the total number of firms. "First Invest" is the first year in which investable firms enter the sample. "Invest & SC" and "Invest & DC" refers to the number of single- and dual-class share investable firms. Financial development indicators are sourced from the World Bank. DCPS is credit provided to the private sector in the country (as a % of GDP), and MCAP is market capitalization of listed firms in the country (as a % of GDP). ACC is accounting standards, which is a measure provided by the Center for International Financial Analysis and Research (CIFAR) (sourced from La Porta et al. (1998)). The index ranges from 1 to 100, with low scores indicating poor accounting standards. Country governance (GOV) is a measure of country governance, and is sourced from Kaufmann et al. (2007). Country governance is calculated by averaging over the years 1996, 1998, and 2000. It is the sum of voice & accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. SR is shareholder rights, and is Spamann's (2010) "corrected" anti-director rights index. Where the Spamann (2010) "corrected" anti-director rights index is not available (i.e. China, Czech Republic, Hungary, Indonesia, Poland, Russia, and Sri Lanka), I use the revised version of the anti-director rights index created by Djankov et al. (2008). Low values of country governance and shareholder rights reflect poor governance and weak shareholder rights, respectively.

Table 2
Univariate comparisons.

Measure of excess growth	Comparison of means		
	Before	After	Difference
	Excess growth calculated using sales growth		
Excess SG	(0.001)	(0.003)	(0.002)
Excess SFG	0.028	0.025	(0.003)
	Excess growth calculated using asset growth		
Excess SG	(0.001)	0.001	0.002
Excess SFG	0.030	0.029	(0.001)
Measure of excess growth	Comparison of medians		
	Before	After	Difference
	Excess growth calculated using sales growth		
Excess SG	(0.048)	(0.045)	0.003
Excess SFG	(0.026)	(0.027)	(0.001)
	Excess growth calculated using asset growth		
Excess SG	(0.031)	(0.023)	0.008
Excess SFG	(0.027)	(0.019)	0.008
Measure of excess growth	Comparison of proportions		
	Before	After	Difference
	Excess growth calculated using sales growth		
Excess SG	0.28	0.17	(0.11)***
Excess SFG	0.31	0.15	(0.16)***
	Excess growth calculated using asset growth		
Excess SG	0.31	0.19	(0.12)***
Excess SFG	0.33	0.16	(0.17)***

In this table I report the mean and median excess growth rate for investable firms before and after they first become investable. In the bottom rows, I also report the proportion of firms in each country whose actual sales (or asset) growth rate exceeds either their predicted short-term financed growth rate (SFG) or their predicted sustainable growth rate (SG). Excess growth is either Excess SG or Excess SFG. Excess SG is a firm's actual sales or asset growth rate (as indicated) which exceeds its predicted sustainable growth rate (SG). The predicted sustainable growth rate (SG) is calculated as (ROE/(1 − ROE)) where ROE is the return on equity. Excess SFG is a firm's actual sales or asset growth rate (as indicated) which exceeds its predicted short-term financed growth rate (SFG). For each firm, SFG is calculated as (ROLTC/(1 − ROLTC)) where ROLTC is the ratio of earnings after interest and tax to long-term capital. Long-term capital denotes the assets of a firm not financed by short-term debt, and is calculated as the product of a firm's total assets and 1 minus the ratio of short-term liabilities to total assets.
*** Statistical significance at the 10% level.

financing once they become investable.[11] In summary, my findings, when added to theirs, suggest that investable firms use less equity financing once they become investable, resulting in a decrease in externally-financed growth rates.[12] Collectively, these findings lend support to the notion that investable firms are mature firms, and as a result have little need for external finance. Their post-investable growth (see Mitton, 2006) is financed mostly using internal funds (this paper).

The coefficient estimates on the firm-level control variables suggest that externally-financed growth rates are smaller for dividend paying, profitable firms, and firms with a reliance on long-term debt financing. In contrast, and contrary to expectations, large firms have higher externally financed growth rates. Khurana et al. (2008) finds the same. The coefficient estimates on the remaining two control variables (NFA/TA) and (NS/NFA) switch sign depending on whether I measure external financing growth using sales or asset growth.[13]

In Table 4, I estimate Eqs. (4a) and (4b) by financial development, country shareholder rights, country governance, country accounting standards, corporate governance and firm-level financing constraints, respectively.[14] I do so since the analysis performed in Table 3 is likely to mask the differential effect that investability is likely to have across firms.[15] Financial

[11] Chari and Henry (2008) document no significant change in external financing using a country-level indicator of equity market liberalizations.

[12] The evidence is mixed in relation to the relationship between equity market liberalizations and debt issuance. McLean et al. (2011) document a significant increase in net debt issuance; Flavin and O'Connor (2010) document a decrease. Agca et al. (2007) also document a decrease using leverage ratios (debt to assets). My findings suggest that irrespective of the relationship, there is no increase in externally-financed growth rates (using either long-term debt or equity).

[13] Khurana et al. (2008) also document sign changes for some of their control variables, depending on the regression specification employed.

[14] In Tables 4 and 5, I report only the coefficient estimates using Excess SG as the dependent variable (calculated using sales growth). The conclusions remain qualitatively unchanged when I use either Excess SFG (calculated using sales or asset growth) or Excess SG (calculated using asset growth).

[15] Studies closely related to this one suggest that this is the case. Mitton and O'Connor (2012) show that the "investable premium" is larger for firms with sizable pre-investable financing constraints. Both Bae and Goyal (2010) and O'Connor (2012) attribute the greatest value gains from equity market liberalizations to better-governed firms.

Table 3
Regression estimates of the impact of investability on externally-financed growth rates.

	Dependent variable is Excess SG				Dependent variable is Excess SFG			
	Using sales growth		Using asset growth		Using sales growth		Using asset growth	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
INVESTABLE	−0.049***	−0.100***	−0.051***	−0.109***	−0.047***	−0.112***	−0.050***	−0.122***
	(3.11)	(6.62)	(3.75)	(8.18)	(3.26)	(7.68)	(3.87)	(9.11)
DIV/TA	−2.110***	−1.656***	−2.049***	−1.428***	−1.533***	−0.864***	−1.429***	−0.596***
	(5.75)	(4.84)	(7.00)	(5.28)	(5.96)	(3.44)	(7.18)	(2.91)
EBIT/NS	−0.417***	−0.360***	−0.358***	−0.273***	−0.168***	−0.082**	−0.104***	0.010
	(8.70)	(7.84)	(10.68)	(8.39)	(4.06)	(2.04)	(3.92)	(0.33)
NS/NFA	0.021***	0.023***	−0.033***	−0.031***	0.036***	0.039***	−0.019***	−0.016***
	(4.47)	(4.56)	(7.42)	(7.16)	(7.94)	(7.61)	(4.93)	(3.99)
SIZE	0.189***	0.144***	0.219***	0.152***	0.224***	0.159***	0.256***	0.170***
	(12.84)	(11.04)	(15.86)	(12.46)	(16.25)	(12.41)	(18.94)	(13.85)
LTD/TA	0.010	−0.034	−0.011	−0.042	−0.087*	−0.149***	−0.114***	−0.168***
	(0.09)	(0.54)	(0.21)	(0.78)	(1.67)	(2.73)	(2.56)	(3.51)
NFA/TA	0.192***	0.175***	−0.122**	−0.155***	0.122**	0.094	−0.219***	−0.264***
	(2.94)	(2.68)	(2.16)	(2.71)	(2.20)	(1.61)	(4.45)	(4.87)
Firm dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	No	Yes	No	Yes	No	Yes	No
# Obs	13,821	13,821	13,821	13,821	13,821	13,821	13,821	13,821
R-squared	0.033	0.027	0.048	0.049	0.025	0.010	0.034	0.017

This table reports coefficient estimates from firm-fixed effects regressions with *t*-statistics (absolute value) reported in parentheses. The *t*-statistics are calculated using standard errors clustered at the firm level. INVESTABLE is a dummy variable that is set equal to one in years in which the firm is designated as investable. The dependent variable is Excess SG or Excess SFG, as indicated. Excess SG is a firm's actual sales or asset growth rate (as indicated) which exceeds its predicted sustainable growth rate (SG). The predicted sustainable growth rate (SG) is calculated as (ROE/(1 − ROE)) where ROE is the return on equity. Excess SFG is a firm's actual sales or asset growth rate (as indicated) which exceeds its predicted short-term financed growth rate (SFG). For each firm, SFG is calculated as (ROLTC/(1 − ROLTC)) where ROLTC is the ratio of earnings after interest and tax to long-term capital. Long-term capital denotes the assets of a firm not financed by short-term debt, and is calculated as the product of a firm's total assets and 1 minus the ratio of short-term liabilities to total assets. DIV/TA is total dividends divided by total assets. EBIT/NS is earnings before interest and taxation to net sales. NS/NFA is net sales to net fixed assets. Firm Size [SIZE] is proxied using the log of assets in real US$. LTD/TA is long-term debt to total assets and NFA/TA is net fixed assets to total assets. A full set of firm and time fixed-effects are included but not reported. # Obs is the number of firm-year observations. The overall *R*-squared is reported.

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

sector development is either domestic credit to the private sector (as a % of GDP) (DCPS) or market capitalization of listed firms, also as a % of GDP (MCAP).[16] I use Spamann's (2010) "corrected" anti-director rights index (using 1997 values) to measure country shareholder rights.[17] Country-governance is measured using the governance measures of Kaufmann et al. (2007).[18] Accounting standards is from CIFAR (Center for International Financial Analysis & Research), which I source from La Porta et al. (1998).[19] To measure the strength of corporate governance, I use an indicator variable that takes the value of one if the firm is a dual-class share firm (DC), and zero for a single-class share firm (SC).[20] To classify firms as either SC or DC, I employ the 'Currently a Multiple Share Company' variable from Worldscope. It identifies multiple share companies as "...companies which currently have more than one type of common/ordinary

[16] Table 1 outlines the financial development, shareholder rights, country governance and accounting standards measures by country. They suggest that financial markets are well-developed in Malaysia, but not so in Venezuela. Shareholders are well protected in Brazil, Chile, Pakistan and Taiwan, but not so in China. Portugal (Taiwan) score high using measures of country governance (accounting standards).

[17] rights is an index that aggregates six different shareholder rights and ranges in value from 0 to 6 with 6 as the highest level of protection for minority shareholders. Where the Spamann (2010) "corrected" anti-director rights index is not available (i.e. for China, Czech Republic, Hungary, Indonesia, Poland, Russia, and Sri Lanka), I use the revised version of the anti-director rights index created by Djankov et al. (2008).

[18] This measure, available on a semi-annual basis from 1996 to 2000, and on an annual basis from 2000, is comprised of six components, namely, voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. I calculate country governance for each country in my sample, as the sum of each of these six variables in each year, and averaged over the years 1996, 1998, and 2000, in order to coincide with the sample period in this paper.

[19] The index of accounting standards is measured in 1995 and is created by examining and rating companies' annual reports for their inclusion and exclusion of 85 items and ranges from 0 to 100 with 100 as the highest accounting standard.

[20] Durnev and Kim (2005, 2007) show using CLSA and S&P corporate governance data that in firms where control rights exceed cashflow rights (e.g. dual-class share firms), corporate governance standards tend to be lower in these firms, relative to firms where no such differences (or much smaller differences) exist between control and cashflow rights (e.g. single-class share firms). Consistent with the view, the consumption of private benefits tends to be greater in firms with dual-class shares compared to firms with single-class share structures (DeAngelo and DeAngelo, 1985; Grossman and Hart, 1988, and more recently, Masulis et al., 2009).

Table 4
Regression estimates of the impact of investability on externally-financed growth rates.

	Domestic creditor to private sector (DCPS)		Market capitalization (MCAP)		Shareholder rights (SR)		Country governance (GOV)		Accounting standards (ACC)		Single & dual-class share firms		Dividend payout (DP)	
	High DCPS (1)	Low DCPS (2)	High MCAP (3)	Low MCAP (4)	High SR (5)	Low SR (6)	High GOV (7)	Low GOV (8)	High ACC (9)	Low ACC (10)	Single Class (11)	Dual Class (12)	High DP (13)	Low DP (14)
INVESTABLE	−0.063***	−0.027	−0.065***	−0.042	−0.044**	−0.090***	−0.066***	0.001	−0.048**	0.010	−0.045**	−0.066**	−0.031	−0.060***
	(3.06)	(0.98)	(3.28)	(1.41)	(2.46)	(2.69)	(3.39)	(0.03)	(2.37)	(0.27)	(2.50)	(2.03)	(1.43)	(2.60)
DIV/TA	−2.068***	−2.068***	−2.156***	−1.864***	−2.346***	−1.307	−2.129***	−2.187***	−2.402***	−2.169***	−2.211***	−1.978***	−1.683***	−5.715***
	(3.67)	(3.94)	(3.79)	(4.08)	(5.71)	(1.50)	(4.20)	(4.41)	(5.08)	(3.01)	(4.55)	(3.58)	(4.26)	(6.42)
EBIT/NS	−0.347***	−0.600***	−0.363***	−0.523***	−0.366***	−0.637***	−0.383***	−0.456***	−0.482***	−0.599***	−0.411***	−0.434***	−0.549***	−0.338***
	(5.76)	(6.68)	(5.77)	(6.48)	(6.73)	(7.19)	(6.25)	(5.90)	(4.98)	(6.38)	(6.87)	(5.47)	(6.86)	(5.58)
NS/NFA	0.035***	0.002	0.031***	0.004	0.019***	0.034***	0.020***	0.022**	0.026***	−0.010	0.020***	0.029**	0.012**	0.035***
	(4.45)	(0.33)	(4.70)	(0.59)	(3.70)	(2.66)	(3.64)	(2.20)	(4.10)	(0.56)	(3.76)	(2.42)	(2.13)	(3.93)
SIZE	0.173***	0.179***	0.202***	0.156***	0.170***	0.288***	0.168***	0.222***	0.250***	0.248***	0.179***	0.206***	0.170***	0.207***
	(8.16)	(7.12)	(9.94)	(6.27)	(10.38)	(7.86)	(9.58)	(8.95)	(12.10)	(6.13)	(10.12)	(7.74)	(8.13)	(9.90)
LTD/TA	0.113	−0.177*	0.088	−0.081	0.023	−0.153	0.021	−0.010	−0.058	0.245	0.023	−0.010	0.032	−0.024
	(1.32)	(1.95)	(1.08)	(0.82)	(0.34)	(0.98)	(0.25)	(0.09)	(0.74)	(1.33)	(0.30)	(0.10)	(0.35)	(0.29)
NFA/TA	0.196**	0.215**	0.245***	0.091	0.196***	0.283*	0.127	0.323***	0.182**	−0.013	0.209***	0.163	0.208**	0.170*
	(2.20)	(2.03)	(2.80)	(0.90)	(2.74)	(1.78)	(1.57)	(3.11)	(1.97)	(0.06)	(2.63)	(1.43)	(2.16)	(1.87)
Firm dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# Obs	7659	4564	8496	4428	11,293	2528	8965	4856	6154	2043	9604	4217	6909	6912
R-squared	0.051	0.031	0.042	0.024	0.047	0.010	0.028	0.050	0.022	0.101	0.039	0.027	0.033	0.014

This table reports coefficient estimates from firm-fixed effects regressions with *t*-statistics (absolute value) reported in parentheses. Separate regressions are reported for firms in countries with high (above-median) or low (below-median) financial development (DCPS & MCAP), shareholder rights (SR), country governance (GOV), accounting standards (ACC), for single and dual class firms, and for firms with high (above-median) and low (below-median) dividend payout (DP). All of these measures are defined in the main text. The *t*-statistics are calculated using standard errors clustered at the firm level. INVESTABLE is a dummy variable that is set equal to one in years in which the firm is designated as investable. The dependent variables is Excess SG. Excess SG is a firm's actual sales growth rate which exceeds its predicted sustainable growth rate (SG). The predicted sustainable growth rate (SG) is calculated as (ROE/(1 − ROE)) where ROE is the return on equity. A full set of firm and time fixed-effects are included but not reported. # Obs is the number of firm-year observations. The overall *R*-squared is reported.

* Statistical significance at the 10% level.

** Statistical significance at the 5% level.

*** Statistical significance at the 1% level.

share." Of the total number of investable firms (see Table 1), 476 are single-class share firms, and the remaining 210 are dual-class share firms. All 89 Korean investable firms are single-class share firms. Brazil (35) provides the greatest number of dual-class investable firms. I proxy for the severity of financing constraints using corporate dividend payouts (see Fazzari et al., 1988). I measure dividend payouts as dividends to assets.[21] Investable firms are financially constrained (in the pre-investable period), if their dividend payout is below the sample median dividend payout.

The coefficient estimates outlined in Table 4 by financial development, shareholder rights, country governance, and accounting standards, suggest, as before, that stock market liberalizations is not associated with an increase in firm-level externally-financed growth rates. The tests by corporate governance will shed further light on the underlying sources of the "investable premia" documented by Mitton and O'Connor (2012) and O'Connor (2012). The former uncover an "investable premium" in the region of 9% for investable firms, and the latter show the premium is largest for single-class share firms. If reduced financing constraints explain at least part of the "investable premium", then I would expect β_1 to be positive and statistically significant for both, but greater for single-class share firms. If β_1 is not positive, this would then suggest the underlying sources of the "investable premium" lie elsewhere, and is likely a result of improvements in a firm's corporate governance practices (see Bae et al., 2006).

The coefficient estimates suggests that neither dual nor single class share firms experience an increase in externally-financed growth once they become investable. These findings suggest the "investable premium" is likely the result of, among other, an improvement in corporate governance, in part presumably arising from greater participation by foreign institutional investors.[22]

Finally, I reach similar conclusions when I classify firms by financing constraints. For both sets of firms, the coefficient estimates on the investable dummy are statistically negative. In fact, if anything, the bottom panel suggests that financially-constrained firms (firms with below-median dividend payout), and those firms with potentially the most to gain from becoming investable rely even less on external financing once they become investable. For these firms, the promise of reduced financing constraints from becoming investable fails to materialize.[23]

5. Robustness

In this section I examine whether my findings are robust to (1) the inclusion of extra firm-level control variables; (2) the exclusion of closely-held investable firms, and (3) a longer sample (post-investable) period. In the top panel of Table 5, I estimate Eqs. (4a) and (4b) with the inclusion of two additional firm-level control variables, namely Tobin's q (TOBIN'S Q) and share turnover (TURNOVER).[24] Both should be positively related to measures of externally-financed growth, since higher marginal q's imply higher growth opportunities, and the costs of issuing equity are higher for illiquid stocks. Further, both are most likely correlated with the investable dummy, since firms that become investable are worth more, and are traded more than their noninvestable counterparts, before becoming investable.[25] Therefore the exclusion of these two variables may serve to bias the coefficient estimate on the investable dummy. I find that both are positively related to externally-financed growth rates. More important, given their inclusion, the coefficient estimates on the investable variable remains negative and statistically insignificant without exception. My findings appear notto be driven by omitting these two relevant firm-level control variables.[26]

Next, I attempt to address concerns that investable firms may not be truly investable (i.e. available to foreign investors) because of a small free-float. Firms that are closely-held, maybe investable, and thus available to foreign investors in name only, since the number of shares available to foreign owners is small. Consequently, what I may in fact be finding in this paper is that a firm dpes not experinence a significiant change in external financing once they become investable, not by choice, but because minimal free-floats prevent foreign investors from investing in this firm in the first instance. To address this concern, I estimate for each investable firm, their median closely-held shares (as a % of total shares outstanding) over the full sample period, and rank from highest to lowest. I remove the top 25th percentile of firms (i.e. those investable firms most closely-held), and proceed to estimate Eqs. (4a) and (4b) for the remaining investable firms (and all noninvestable firms).[27] The coefficient estimates remain negative and statistically significant. For firms that are genuinely available to foreign investors, externally-financed growth decreases once they become investable.[28]

[21] I use dividends to assets and not dividends to earnings or dividends to cashflow because the sample sizes using either earnings or cashflow are smaller.

[22] Consistent with this view, Bae et al. (2006) document an improvement in a firm's information environment post-liberalization. Aggarwal et al. (2011) and Ferreira and Matos (2008) highlight the role played by foreign institutional investors in improving corporate governance.

[23] Mitton and O'Connor (2012) find no "investable premium" for financially-constrained and unconstrained firms when they use dividend payouts to proxy for financing constraints. When they use investment-cashflow sensitivities to gauge the extent of financing constraints, they do find a large "investable premium" for financially-constrained firms. I do not have access to data which would allow me to estimate investment-cashflow sensitivities. Thus, I am unable to perform a similar exercise to theirs.

[24] Tobin's q is measured as the book value of debt plus market capitalization divided by the book value of assets. Market value of debt is proxied using its book value counterpart, and the replacement cost of assets as the book value of assets. Book value of debt is calculated as the book value of total assets less the book value of equity. Turnover is total shares traded in each year divided by the total number of shares outstanding at the end of the year.

[25] For example, both Mitton and O'Connor (2012) and O'Connor (2012) show that investable firms are worth more than non-investable firms even prior to becoming investable. Furthermore, the IFC designate firms as investable based on a number of criteria, one being shares traded (liquidity).

[26] When I include these two additional control variables, the number of firm-year observations drops to 12,539.

[27] For the remaining investable firms, the median number of shares closely held (as a % of total shares outstanding) is 48.94 with a standard deviation of 21.98.

[28] Note that the closely-held shares measure is not available for all investable firms, and as a result the number of firm-year observations falls to 8238.

Table 5
Robustness.

	(1)	(2)
	Regression estimates with TOBIN'S *Q* & TURNOVER included	
INVESTABLE	−0.054***	−0.091***
	(3.30)	(5.70)
TOBIN'S *Q*	0.012**	0.024***
	(2.23)	(4.98)
TURNOVER	0.016***	0.010*
	(2.99)	(1.75)
DIV/TA	−2.020***	−1.654***
	(5.32)	(4.64)
EBIT/NS	−0.381***	−0.343***
	(7.71)	(7.10)
NS/NFA	0.029***	0.030***
	(4.90)	(4.95)
SIZE	0.190***	0.158***
	(12.03)	(10.75)
LTD/TA	0.031	−0.019
	(0.47)	(0.28)
NFA/TA	0.197***	0.176**
	(2.82)	(2.51)
Firm dummies	Yes	Yes
Time dummies	Yes	No
# Obs	12,539	12,539
R-squared	0.034	0.023
	Regression estimates for investable firms with median closely-held shares (%) less than the 75th percentile	
INVESTABLE	−0.064***	−0.146***
	(2.66)	(6.62)
Firm dummies	Yes	Yes
Time dummies	Yes	No
Controls	Yes	Yes
# Obs	8238	8238
# Invest	227	227
R-squared	0.042	0.031
	Regression estimates over an extended post-investable period	
INVESTABLE	−0.112	−0.179*
	(1.23)	(1.76)
Firm dummies	Yes	Yes
Time dummies	Yes	No
Controls	Yes	Yes
# Obs	55,805	55,805
R-squared	0.041	0.037

This table reports coefficient estimates from firm-fixed effects regressions with *t*-statistics (absolute value) reported in parentheses. The *t*-statistics are calculated using standard errors clustered at the firm level. INVESTABLE is a dummy variable that is set equal to one in years in which the firm is designated as investable. The dependent variables is Excess SG. Excess SG is a firm's actual sales or asset growth rate (as indicated) which exceeds its predicted sustainable growth rate (SG). The predicted sustainable growth rate (SG) is calculated as (ROE/(1 − ROE)) where ROE is the return on equity. TOBIN'S *Q* is the book value of debt plus market capitalization divided by the book value of assets. Market value of debt is proxied using its book value counterpart, and the replacement cost of assets as the book value of assets. Book value of debt is calculated as the book value of total assets less the book value of equity. TURNOVER is total shares traded in each year divided by the total number of shares outstanding at the end of the year. All other variables are defined in the main text. A full set of firm and time fixed-effects are included but not reported. # Obs is the number of firm-year observations. The overall *R*-squared is reported.

* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

Finally, in the bottom rows of Table 5, I extend the sample (investable) periodto alleviate concerns that my findings are more a reflection of market segmentation, which may manifest at least in the early years of my sample period. To address this concern, I estimate Eqs. (4a) and (4b) but now over the extended period from 1980 to 2007.[29] Using this longer sample period, which incorporates more recent years in which market segmentation is less likely to be of real concern, the coefficient estimates on the investable variable remain negative and statistically significant.[30] Therefore, even when I allow for an extended investable period, a period in which equity markets are more integrated, external financing continues to contribute less to firm growth.[31]

6. Concluding remarks

In this paper I document results which are consistent with recent evidence which suggests that investable firms use less, and not more, external-financing once they become investable. Flavin and O'Connor (2010) and McLean et al. (2011) examine the post-investable external capital issuance behavior of investable firms, and find there is a *decrease* in the issuance of equity capital, while the evidence on debt issuance is mixed. In this paper, I examine this issue further, but adopt a different approach. Specifically, I examine the contribution made by external-financing to the performance of investable firms by examining how their externally-financed growth rates change once they become investable.

To do so, I calculate the difference between firms' *actual* and *predicted* growth rate using the constrained or predicted growth rates of Demirguc-Kunt and Maksimovic (1998). The difference between a firm's actual and predicted growth rate is a measure of the extent of a firm's external-financing activity. If equity market liberalizations result in a relaxation of financing constraints, then this difference should increase, once a firm becomes investable. This is not what I find.

My findings are in line with both Flavin and O'Connor (2010) and McLean et al. (2011). I find that investable firms experience a *decline* in their externally-financed growth rates once they become investable. When I further divide my original sample using measures of financial development, country institutional development, firm-level financing constraints, and corporate governance, I uncover no evidence which suggests that equity market liberalizations result in a reduction in financing constraints, and ultimately increases in externally-financed growth rates. While I and others can only speculate why this occurs, what these findings do suggest is the gains from becoming investable are not the result of reduced financing constraints, but most likely from improvements in corporate governance.

[29] It is important to note here that I do not have access to the investable dummies beyond the year 2000. Thus, from the year 2001onwards there are not additional investable firms, and I further assume that those firms that were investable in 2000 remain so until 2007.

[30] The number of firm-year observations now rises to 55,805.

[31] This finding is consistent with the findings of McLean et al. (2011) who show that investable firms issue less external capital up to and including the year 2008.

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