



Contents lists available at ScienceDirect

Research in International Business and Finance

journal homepage: www.elsevier.com/locate/ribaf

Full length article

Financial openness and entrepreneurship

Richard P. Gregory

East Tennessee State University, Department of Economics and Finance, 227 Sam-Wilson Hall, PO Box 70686, Johnson City, TN 37614, United States



ARTICLE INFO

JEL classification:
G15

Keywords:
Entrepreneurship
Financial regulation
Emerging markets

ABSTRACT

Using a panel data set of 62 countries from 1995 through 2013, the effects of financial openness on changes in entrepreneurship rates in the economy are estimated for emerging and developed markets. Controlling for the effects of political risk in conjunction with capital controls, capital controls have a negative effect on entrepreneurialism in emerging market countries, but can have a positive effect on entrepreneurialism in developed markets. The imposition of financial controls have a greater effect in magnitude in developed markets than in emerging markets, indicating that development of the internal financial system plays a role in extenuating the effects of capital controls. The effect of the imposition of financial controls is not uniform across the various financial instruments. In particular, the imposition of capital controls on derivatives and real estate in developed markets is associated with a negative effect on entrepreneurialism, unlike for other financial instruments in developed markets. However, in emerging markets, the effects on entrepreneurialism of financial controls seems to be more uniform when controlling for the interaction of political risk and financial controls. In controlling for the effects of political risk on financial liberalization, the effects of financial controls between emerging markets and developed markets are not the same. In general, the imposition of financial controls in emerging markets is associated with a decline in entrepreneurialism, while the imposition of such controls in developed markets is associated with an increase in entrepreneurial activity.

1. Introduction

While it is acknowledged that there are important organizational and behavioral differences between firms in emerging and developed markets, the research on these differences in regards to financial development from an institutional perspective on entrepreneurship is just developing. This study takes a top-down approach to understand how the interaction of policy and financial development can affect the rate of new business formation in emerging and developed markets.

Many emerging markets share a lack of internal financial market development, with the local government still controlling or wielding enormous influence in local banking (La Porta et al., 2002). The result can be an inefficient allocation of resources, including, by analogy, entrepreneurship. Financial development in emerging markets can also be hampered by weak legal systems for the protection of the rights of entrepreneurs. Chen et al. (2009) find that the effect of firm-level corporate governance in emerging markets is significantly negative on the cost of equity capital, with the effect strongest in countries providing poorer protection for entrepreneurs and investors.

It has also been noted that as financial development lags, emerging markets have less access to external capital, debt or equity. Competing for such external resources can often involve non-price mechanisms such as banking relationships and governmental relations. Entrepreneurs with access to such relations can leverage these as a competitive advantage and diversify into various sectors

E-mail address: gregoryr@etsu.edu.

<https://doi.org/10.1016/j.ribaf.2018.12.006>

Received 15 January 2018; Received in revised form 3 December 2018; Accepted 4 December 2018

Available online 13 December 2018

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and form business groups within which these scarce resources can be shared (Morck et al., 2004; Khanna and Yafeh, 2007).

Such conditions are thought to create more uncertainty for entrepreneurship in emerging markets than in developed markets, a possibility explored by Aidis (2005); Fogel et al (2006); Luthans and Ibrayeva (2006) and Manolova et al (2008). On the other hand, Tracey and Phillips (2011) contend that such conditions can create opportunities where entrepreneurs can exploit institutional uncertainty and create value by solving institutional problems.

Bruton et al. (2008) argue that there is a need to understand the differences between entrepreneurship in emerging and mature economies, contending that there are great differences in many respects. Kolverid and Obloj (1994) on the other hand have argued that the differences are less than what may be expected.

This study adds to the literature on comparative entrepreneurship between mature and emerging markets. This study takes a top-down research approach, investigating how a country's institutions affect the new entry rate of limited liability corporations in 62 countries throughout the world. It focuses on how countries regulatory barriers to foreign capital flows in 10 different asset types affect the new-entry rate, while controlling for institutional quality and other factors. Great differences are found in most financial markets between entrepreneurial activity as measured by the new entry rate between mature and emerging markets. However, for some financial flows, little difference is found. Reasons why for these discrepancies are explored.

2. Institutionalization and entrepreneurship

Scholars in entrepreneurship have drawn on institutional theory to elucidate the processes that underlie entrepreneurship in emerging markets. Hoskisson et al., (2000, p. 252) note that "in the early stages of market emergence, institutional theory is pre-eminent in helping to explain the impacts on enterprise strategies" At their broadest level, institutions are viewed as "self-policing" conventions that influence behavior as deviations from accepted institutional order is costly in some way. For example, institutions such as taken-for-granted business practices, technological standards, industry codes of practice, standard contracts and regulation all impose constraints on the strategic decision making of the entrepreneur. Institutions also enable business functioning by providing standardized model of behavior and constraints that all participants abide by to provided less cost in terms of negotiating.

For developed countries, the more highly institutionalized a practice or regulation becomes, the more costly deviations from it become (Lawrence et al., 2001). Institutions have enforcement mechanisms, such as fines, etc., that associate non-conformity with increased costs by increasing the risk for the entrepreneur, requiring more thought to circumvent institutions and reducing legitimacy and the resources that can be made by institutions available to legitimate entrepreneurs.

It is important to understand that the view of institutions is not a binary one, with institutions either existing or not existing. Rather, institutionalization is viewed as a process, a continuum of levels of institutionalization and associated mechanisms of enforcement (Phillips et al., 2009). Institutionalization is viewed as varying from weakly institutionalized, with minimal costs for deviation from norms, to very deeply institutionalized, with significant costs for deviation.

In institutional theory, emerging markets are characterized by a large number of emerging relationships and uncertainty in these relationships, between economic actors and their networks. The argument of neo-institutionalism is that entrepreneurs can both take advantage of the uncertainty that this creates in order to establish new businesses and play a key role in the development of relationships by influencing the process of institutionalization (Tracey and Phillips, 2011). Tracey and Phillips argue from neo-institutional theory that entrepreneurs in emerging markets have three strategies for using institutional barriers to international financing to foster entrepreneurship. These three strategies are: institutional brokering, where entrepreneurs found ventures that reduce institutional uncertainty faced by other businesses; spanning institutional voids, where entrepreneurs found ventures that solve institutional problems in areas where the level of institutionalization is low; and bridging institutional distance, where entrepreneurs transfer and adapt solutions from other contexts.

Institutional entrepreneurship, the actions of economic actors who leverage resources to create new institutions or to transform existing ones, has been an increasing focus of researchers (Garud et al., 2002; Greenwood et al., 2002; Lounsbury, 2002). In both emerging and developed markets, the activities of institutional entrepreneurs have come to be seen as a key source of change. It is an important concept in that it highlights the ways in which entrepreneurs work toward strategic objectives by deliberately leveraging resources in order to create and/or manipulate institutions in which they participate, thereby creating entrepreneurial opportunities.

Therefore, institutionalization, through law and regulation, or through informal forms of conduct, can have two different effects on entrepreneurship. Institutionalization can inhibit entrepreneurship by placing both formal and informal barriers to entrepreneurship, inhibiting the formation of new businesses by making the start-up costs higher than they would be without such institutions place. Further, they can create barriers to funding and resources needed for a new business. On the other hand, institutionalization can create opportunities for entrepreneurs, opening up avenues of providing services to deal with institutions or creating new ones, providing means to obtain resources within a new or altered institutional framework.

In terms of the formal institutions regarding foreign capital inflows and outflows, the working hypothesis is that for emerging markets, the relaxation of capital controls creates more opportunities for entrepreneurs to take advantage of access to foreign sources of capital and relaxation of badly enforced rules so that the relaxation of controls increases the rate of entrepreneurship. However, for developed markets, it is hypothesized that in such developed markets with highly developed informal institutions, the relaxation of formal controls will have a lower overall effect. The imposition of new controls, for highly developed countries, will encourage entrepreneurship as entrepreneurs seek to leverage their local knowledge to create new institutions to deal with the imposition of more capital controls in the developed economy.

The role of financial development on entrepreneurship has received investigation in the literature on entrepreneurship. Dutta and Sobel (2018) find that an increase in human capital benefits entrepreneurship when the level of financial development of a country is

low. While for higher levels of financial development, the impact of human capital is still positive, it is much less in magnitude compared to countries with lower levels of financial development.

Most of the recent literature that investigates the effects of financial liberalization on entrepreneurship concentrates on the flows of foreign direct investment (FDI), where foreign business enterprises directly invest cash flows into an emerging market. [Kim and Li \(2014\)](#), examining FDI in 104 countries from 2000 to 2009, find that FDI positively relates to business creation and that this effect is stronger in countries with poor institutional support, weak political stability and low general human capital.

[Herrera-Echeverri et al \(2014\)](#) also find a positive and significant relationship between FDI and business development, consistent with the spillover theory of entrepreneurship. [Acs et al \(2009\)](#); [Ayyagari and Kosova \(2010\)](#) and [Görg and Strobl \(2002\)](#) propose that FDI can have an exponential effect on stimulating multiple business entry within the same industry (a horizontal spillover) and within related industries up and down in the same production chain (vertical spillovers).

Unlike previous work, the present paper looks at the controls on a wide range of financial instruments and activities besides FDI. Based on the previous literature, we propose the following hypotheses:

Hypothesis 1. The imposition of financial controls will have a negative effect of entrepreneurship in both emerging and developed economies.

This is in line with the previous literature on FDI that found that greater levels of FDI led to higher levels of entrepreneurship.

Hypothesis 2. The imposition of financial controls will have a greater effect in magnitude in emerging markets than in developed markets.

This follows from the results of [Kim and Li \(2014\)](#).

Hypothesis 3. The effect of the imposition of financial controls will be uniform across the various instruments.

In that the only previous results are for FDI, the adapted null is that controls on all financial instruments will be the same as the effects of controls on FDI.

Hypothesis 4. In controlling for the effects of political risk on financial liberalization, the effects of financial controls between emerging markets and developed markets will be the same.

3. Data and methodology

In this paper, a new dataset constructed by [Fernandez et al. \(2015\)](#) based on the methodology in [Schindler \(2009\)](#), is used. The new dataset reports the presence or absence of capital controls, on an annual basis, for 100 countries over the period 1995–2013. As discussed in greater detail below, this dataset revises, extends, and widens the data set originally developed by [Schindler \(2009\)](#), and later expanded by [Klein\(2012\)](#) and [Fernández et al. \(2014\)](#). This dataset's wide range of countries and its coverage of a period of changing policies make it a potentially important resource for research and policy.

The dataset draws from the International Monetary Fund's (IMF) *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER). The capital control measures are based on the *de jure* information from this source. The AREAER distinguishes across types of transactions according to the residency of the buyer or the seller, and whether the transaction represents a purchase or a sale or issuance. The dataset provides this information on 32 transaction categories for a variety of assets, including: Bonds, Collective Investments, Commercial Credit, Derivatives, Direct Investments, Equities, Financial Credits, Guaranties and Sureties, Money Market Instruments and Real Estate. Thus, unlike previous measures of capital regulation, the current data set covers a wide range of financial transactions.

The AREAER reports the presence of rules and regulations for international transactions by ten asset categories, allowing the dataset to capture a large proportion of global cross-national asset holdings. The categories and their two-letter abbreviations are as follows:

- 1 BO- Bonds and other debt securities with an original maturity of more than one year;
- 2 CC - Commercial credits for operations directly linked with international trade transactions or rendering international services;
- 3 CI - Collective investment securities such as mutual funds and investment trusts;
- 4 DE - Derivatives, including rights, warrants, financial options, futures and secondary operations in other financial claims such as swaps of debt securities and foreign exchange without any other underlying transaction;
- 5 FDI - Direct Investment accounts for transactions made to establish long-lasting economic relations;
- 6 EQ - equities, shares or other securities of a participating nature, excluding those for the purpose of acquiring a lasting economic interest which are covered under Direct Investment;
- 7 FC - Financial credit and credits other than commercial credits;
- 8 GS - Guarantees, Sureties and Financial Back-up facilities;
- 9 MM - Money market instruments, including securities with an original maturity of one year or less, including certificates of deposit and bills of exchange, amongst others;
- 10 RE -Real Estate transactions

The AREAER distinguishes between types of transactions according to residency of the buyer or seller and whether the transaction

Table 1

Descriptive Statistics of control variables and measures of financial openness for 11 financial markets.

	New Entry Rate	Secondary	Life Expectancy	Real GDP per capita	Trade/GDP	Domestic Credit/GDP	ICRG	Bonds	Commercial Credits
Mean	3.384734	90.80105	73.91165	12367.79	91.49505	79.79766	74.35767	0.333442	0.238312
Median	1.821471	95.74589	95.74589	10,036.38	74.53785	60.74797	73.75000	0.250000	0.000,000
St. Dev.	4.761307	22.62216	7.827300	8589.371	65.47929	60.69042	7.987358	0.382826	0.378244
Skewness	3.260531	-0.843872	-1.403819	0.389666	3.263311	0.979463	-0.029296	0.639541	1.197398
Kurtosis	16.45530	4.204099	4.776037	1.774610	15.81632	3.474398	2.460073	1.832413	2.798723
	Collective Investment	Derivatives	Foreign Direct Investment	Equities	FC	Guaranties	Money Market	Real Estate	KA
Mean	0.311688	0.343499	0.315584	0.322078	0.324026	0.204545	0.309416	0.408766	0.310564
Median	0.250000	0.125000	0.000,000	0.250000	0.000,000	0.000,000	0.000,000	0.500000	0.150000
St. Dev.	0.365436	0.413758	0.388075	0.371488	0.415727	0.359768	0.378372	0.339774	0.317876
Skewness	0.729963	0.694024	0.743683	0.652346	0.733200	1.430943	0.764456	0.135565	0.780639
Kurtosis	2.037926	1.760195	2.044716	1.906008	1.841848	3.435812	1.998473	1.786040	2.122635

represents a purchase or sale or issuance. The data set scores a dummy variable, with 1 for the presence of capital controls on asset categories and zero for absence. A control is deemed to be in place when the narrative information of the AREAER alludes to a transaction explicitly requiring "authorization", "approval", "permission" or "clearance" from a public institution in the host country.

For five of the asset categories, Money Markets, Bonds, Equities, Collective Investments and Derivatives, there are four categories of transactions controls for which dummy variables are scored: purchases locally by non-residents, sale or issue abroad by residents, purchases abroad by residents. So that these five asset categories reflect an average score of four dummy variables. The Real Estate category is scored as the average of three dummy variables: purchase locally by non-residents, purchase abroad by residents and sale locally by non-residents. Direct Investment also has three categories of transactions: controls on inflows, controls on outflows, and liquidation of Direct Investment. The remaining assets are scored using only dummy variables on controls for inflows or outflows.

The result of this is a series of variables for the 10 asset categories that can take a value of between 0 and 1, with 0 being completely open and 1 being completely closed. For all variables, it is possible for a country to partially open or closed.

The data collection for entrepreneurship was completed in June 2015 by The World Bank. To measure entrepreneurial activity, annual data was collected directly from 136 company registrars on the number of newly registered limited liability firms. Data is provided on new business entry density, defined as the number of newly registered corporations per 1000 working-age people (those ages 15–64). As in the World Bank's annual "Doing Business" report, the units of measurement are private, formal sector companies with limited liability. The data was collected with the support of the Kauffman Foundation. Previous research using the Entrepreneurship Database has shown a significant relationship between the level of cost, time, and procedures required to start a business and new firm registration (Klapper and Love, 2011).

Table 1 details the descriptive statistics over the entire sample for the number of newly registered firms, the capital control variables and a set of control variables. The control variables are the ratio of secondary school registrations, log average life expectancy, log real GDP per capita, the ratio of trade to GDP, the ratio of domestic private credit to GDP and the ICRG score of the country.

The average of newly registered firms per 1000 working age people is 3.38 per year per country in the sample, with a median of 1.82. On average, the capital control variables are about 0.32, indicating that most of the economies were very open to foreign capital flows in the respective sub-sectors. Real Estate, with an average score of 0.408, was the sub-sector that was the most closed, while Guarantees were on average, the most open subsector.

4. Findings

For Table 2, the model estimated is:

$$NER_t = NER_{t-1} + Sec_t + Tra_t + Log(Life)_t + Log(RGDPC)_t + DC_t + ICRG_t + FI_{i,t} \quad (1)$$

Where NER_t is the new entry rate of LLC firms in the country at time t, taken as the proxy for entrepreneurial activity. Sec_t ratio of secondary school registrations, Tra_t , the ratio of trade to GDP, $Log(Life)_t$ log average life expectancy, $Log(RGDPC)_t$ log real GDP per capita, DC_t , the ratio of domestic private credit to GDP, $ICRG$ the ICRG score of the country, a proxy for political risk and $FI_{i,t}$ as described above for each i, where i denotes the different financial asset control variable.

Eq. (1) is estimated using the well-known methodology of Arellano and Bond (1991). The Arellano – Bond estimator was designed for small-T large-N panels, which seems applicable here with 19 years of data and 89 countries. In estimation, Eq. (2) becomes:

$$y_{i,t} = \beta y_{i,t-1} + \gamma X'_{i,t} + \varepsilon_{i,t} \quad (2)$$

This estimator removes the fixed country effects by first-differencing the equation. Lagged levels of the dependent variable and differences of the independent variables are then used as instruments. Since there are more instruments than independent variables, the equation is over-identified and the instruments are weighted by using an identity matrix. The two-step estimator weighs the

Table 2
The estimation results of estimating the equation: $NER_t = NER_{t-1} + Sec_t + Tra_t + Log(Life)_t + Log(RGDPC)_t + DC_t + ICRG_t + FII_t$. Using the methodology of Arellano and Bond (1991). Standard errors are in parentheses.

Financial Instrument/ Market	Bonds /EM	Bonds/DM	CC /EM	CC /DM	CI/EM	CI/DM	DE/EM	DE/DM	FDI/EM	FDI/DM
NER-1	0.480552 (0.037090)	0.085927 (0.013611)	0.432380 (0.075330)	0.136958 (0.006763)	0.494878 (0.022112)	0.123292 (0.009553)	0.542730 (0.024442)	0.163491 (0.009262)	0.509748 (0.033341)	0.101701 (0.012372)
Sec	-0.031862 (0.008478)	0.119120 (0.006610)	-0.02884 (0.006663)	0.079418 (0.004218)	-0.020305 (0.004244)	0.069851 (0.009153)	-0.017005 (0.006966)	0.070341 (0.007942)	-0.027237 (0.005957)	0.091736 (0.007899)
Trade	0.043651 (0.002269)	0.057495 (0.007432)	0.031936 (0.002427)	0.055327 (0.004244)	0.033850 (0.000972)	0.044469 (0.004501)	0.027422 (0.000883)	0.062520 (0.002543)	0.037014 (0.001709)	0.053453 (0.004677)
Log(Life)	15.84956 (2.071616)	-106.232 (6.246954)	14.56274 (3.384404)	-79.31417 (5.891679)	19.17416 (1.732715)	-43.8190 (3.883079)	14.77947 (2.010377)	-47.53802 (3.361622)	20.74222 (1.773458)	-69.76641 (4.384962)
Log(RGD PC)	1.091073 (0.408081)	27.08903 (1.655983)	1.565736 (0.818749)	22.72220 (1.469535)	0.621087 (0.317484)	24.15545 (6.639192)	1.686948 (0.275975)	20.87585 (0.512652)	0.306764 (0.000479)	24.28722 (1.488548)
DC	-0.010463 (0.003349)	0.038036 (0.006642)	0.000206 (0.004558)	0.050548 (0.004404)	-0.000582 (0.001618)	0.045738 (0.007422)	-0.013417 (0.002606)	0.044712 (0.005139)	0.000479 (0.002902)	0.050175 (0.006907)
ICRG	0.034741 (0.003579)	0.035987 (0.019715)	0.077010 (0.019711)	0.180000 (0.016923)	0.092398 (0.004619)	0.241897 (0.037000)	0.105883 (0.006289)	0.170466 (0.018677)	0.080359 (0.004990)	0.166683 (0.027987)
Financial Instrument	1.613481 (0.222063)	-8.35783 (0.787978)	-1.08123 (0.152666)	-3.084463 (0.426214)	-0.230737 (0.074594)	1.413268 (0.453121)	-0.700804 (0.040279)	-0.686442 (0.313567)	0.449859 (0.136489)	-4.559556 (0.410000)
m1	0.499638 (0.567921)	0.569209 (0.862798)	0.607150 (0.583056)	0.366782 (0.951226)	0.408173 (0.558984)	0.461094 (0.984544)	0.475102 (0.568242)	0.391281 (0.920064)	0.472476 (0.562507)	0.331617 (0.978092)
m2										
Financial Instrument/ Market	EQ-EM	EQ-DM	FC/EM	FC/DM	GS/EM	GS/DM	MM/EM	MM/DM	RE/EM	RE/DM
NER-1	0.479563 (0.033648)	0.045576 (0.015160)	0.545572 (0.027088)	0.106757 (0.012516)	0.474597 (0.163067)	0.072769 (0.016875)	0.493368 (0.013089)	0.095632 (0.014687)	0.456057 (0.012824)	0.130561 (0.008681)
Sec	-0.034055 (0.005655)	0.092621 (0.007495)	-0.013001 (0.007557)	0.082514 (0.007761)	-0.016340 (0.030486)	0.087433 (0.012838)	-0.021948 (0.001977)	0.082723 (0.006489)	-0.020888 (0.001046)	0.069335 (0.009797)
Trade	0.039995 (0.001710)	0.047887 (0.006635)	0.033805 (0.002150)	0.049136 (0.006132)	0.033106 (0.011953)	0.064747 (0.005437)	0.029800 (0.000674)	0.054728 (0.005307)	0.033891 (0.000569)	0.047919 (0.005958)
Log(Life)	17.68641 (1.267547)	-97.86196 (7.838540)	20.49157 (0.978744)	-71.98801 (5.498069)	17.53131 (26.00498)	-72.37668 (9.228763)	20.97156 (0.573676)	-84.61256 (5.343547)	17.80884 (0.691346)	-50.66502 (4.687954)
Log(RGD PC)	0.969441 (0.302500)	30.61069 (1.622755)	-0.031507 (0.430252)	26.39823 (1.429619)	0.927302 (3.177360)	23.84459 (2.322079)	0.805825 (0.239353)	26.22772 (1.404105)	1.567947 (0.125801)	24.25234 (1.537992)
DC	-0.004372 (0.001183)	0.035694 (0.006132)	0.002383 (0.002595)	0.039055 (0.006724)	0.031823 (0.005619)	0.031823 (0.005619)	-0.005984 (0.001480)	0.038004 (0.005694)	-0.006222 (0.001267)	0.048598 (0.007550)
ICRG	0.060303 (0.001401)	0.039754 (0.023402)	0.093352 (0.003879)	0.142229 (0.025486)	0.091624 (0.064443)	0.079605 (0.023456)	0.117524 (0.002652)	0.088654 (0.023350)	0.100537 (0.003350)	0.224156 (0.032222)
Financial Instrument	1.015722 (0.184975)	-6.734080 (0.643510)	-1.178071 (0.123931)	-1.664745 (0.303731)	0.293168 (0.380647)	-7.019326 (0.629388)	-0.536683 (0.429850)	-4.804128 (0.495622)	-2.272782 (0.118119)	-0.610188 (0.209031)
m1	0.475326 (0.563453)	0.597835 (0.108311)	0.582965 (0.585360)	0.265646 (0.505758)	0.013127 (0.045847)	0.265646 (0.512425)	0.344180 (0.582128)	0.265646 (0.575845)	0.383203 (0.626988)	0.265646 (0.363400)
m2										

instruments asymptotically efficiently using the covariance of the one-step estimates. The Arellano-Bond tests for first (m_1) and second (m_2) order autocorrelation of the error term tests are used to test for inconsistency in the presence of autocorrelation.

Table 2 presents the results of estimating the first model. For the secondary education ratio variable, the coefficient is negative and significant for emerging markets, while positive and significant for developed markets. This is taken as an indication that in emerging markets, education is a substitute for entrepreneurship, while in developed markets it complements entrepreneurial skills. The coefficient on the ratio of trade to GDP is positive and significant for all economies, indicating that greater external trade dependency creates more opportunities for entrepreneurship in both emerging and developed economies, though on average, the value of the coefficient is higher for developed economies.

The effect of the life expectancy variable also exhibits a dichotomy: it is positive and significant for emerging markets, while negative and significant for developed markets. This is taken as an indication of the effects of more effective social insurance in developed markets, with the presence of social insurance mitigating the need to find means to develop sources of income with aging. The log of real GDP per capita in US Dollars is generally positive and significant, indicating that a richer populace supports more entrepreneurs, though there are some exceptions that are accredited to the possible effects of multicollinearity.

The ratio of domestic credit to GDP is generally positive and significant for developed markets, indicating that a robust domestic credit market aids entrepreneurial development. The effect for emerging markets of domestic capital is less clear. Most of the regressions exhibit a significant negative coefficient, indicating that domestic capital market development inhibits entrepreneurship, but for three of the market controls, the effect is positive and insignificant. The effect of the political risk variable, ICRG, is positive and significant; indicating that less political risk encourages entrepreneurship.

The effects of the individual asset capital controls are mixed. In general, most of the capital controls decrease entrepreneurship for developed markets, as exhibited by the negative and significant coefficients. The only exception is collective investments such as mutual funds. Financial controls on mutual funds are associated with a positive effect on entrepreneurship in developed markets, For emerging markets, the picture is mixed. Capital controls on bonds, collective investments, foreign direct investment, and equities are associated with higher levels of entrepreneurship, indicating that allowing these foreign investments to be sold in emerging markets decreases levels of business creation. On the other hand, capital controls on commercial credit, derivatives, financial credits, money market instruments and real estate are associated with lower levels of entrepreneurship. The coefficient on guaranties and sureties is positive, but insignificant.

Altogether, the results support that regulatory controls on capital flows inhibit entrepreneurship in an economy, more so for developed economies. The big exception is controls on collective investments such as mutual funds generally have a positive effect on entrepreneurship, suggesting that collective investments may be either substitutes for some types of entrepreneurial activity or restrict opportunities for entrepreneurs. For emerging markets, capital controls on bonds, foreign direct investment and equities are also associated with higher rates of entrepreneurship, suggesting that at lower levels of development that access to such foreign investments act as substitutes to entrepreneurialism or act as inhibitors to entrepreneurs finding financing.

It is also interesting to note that in terms of absolute magnitude of effect, that developed market entrepreneurialism is much more reactive to the imposition of capital controls than are developed markets. This may be due to the higher degree of development of the developed market's internal financial system.

However, as previous research has shown, the effects of foreign capital on entrepreneurialism may be enhanced or mitigated by the level of political risk in the country. To investigate the effects of political risks such as adherence to the rule of law, etc., the ICRG score of the country is used in conjunction with the financial control variables. These results are exhibited in Table 3.

For Table 3, the model estimated is:

$$NER_t = NER_{t-1} + Sec_t + Tra_t + Log(Life)_t + Log(RGDPC)_t + DC_t + ICRG_t + FI_{i,t} + FI_{i,t} * ICRG_t + FI_{i,t} * ICRG_t^2 \quad (3)$$

For emerging markets, the effect of capital controls alone on entrepreneurship is uniformly negative, in contrast to the previous results not allowing for the interaction of political risk and financial controls. However, as the level of political risk goes down (ICRG score increases), the effect of financial controls on entrepreneurialism become less negative, as expressed by the coefficient signs on $FI_{i,t} * ICRG_t$. Thus it seems that in terms of spurring entrepreneurialism in developing markets, political risk and financial controls are substitutes for each other.

For developed markets, the effect of capital controls alone on entrepreneurship is positive, except for controls on derivatives and real estate, where the effect is negative. This may be due to speculation in these markets, so that foreign cash coming in these forms crowd out entrepreneurialism as it is easier to make money by working in real estate and derivative markets than becoming an entrepreneur. However, as the negative term on $FI_{i,t} * ICRG_t$ for developed markets shows, as political risk falls, the effect of capital controls in developed markets becomes more negative.

Fig. 1 illustrates the estimated effects on entrepreneurship from imposing full capital controls on money market flows for emerging and developed markets for different relevant levels of political risk as measured by ICRG score. For developed markets, the sign of the effect on entrepreneurship changes with the level of political risk. For a political risk score below 78, the effect of capital controls is to lower the rate of new business formed, indicating that foreign money market flows aid entrepreneurship by providing capital. However, above 78, the effect is positive, indicating that the imposition of capital controls encourages entrepreneurship! One possible interpretation is that, at a low level of political risk, the imposition of capital controls creates more entrepreneurial opportunities as argued by, Tracey and Phillips (2011), except this is for developed markets, not emerging markets!

For emerging markets, the effect of the imposition of capital controls is uniformly negative; though the effect generally become less negative as the ICRG score rises (hence the level of political risk declines). For comparable levels of political risk to developed

Table 3
 The estimation results of estimating the equation: $NER_t = NER_{t-1} + Sec_t + Tra_t + Log(Life)_t + Log(RGDPC)_t + DC_t + ICRG_t + FI_t + FI_t^*ICRG_t + DC_t + ICRG_t + FI_t + FI_t^*ICRG_t$ using the methodology of Arellano and Bond (1991). Standard errors are in parentheses.

Financial Instrument/Market	Bonds /EM	Bonds/DM	CC /EM	CC /DM	CI/EM	CI/DM	DE/EM	DE/DM	FDI/EM	FDI/DM
NER-1	0.444837 (0.040032)	-0.114873 (0.015421)	0.505785 (0.074378)	-0.075223 (0.023028)	0.426940 (0.026099)	-0.057099 (0.020101)	0.433794 (0.036117)	0.108262 (0.020134)	0.490057 (0.033308)	-0.058198 (0.015606)
Sec	-0.018334 (0.007222)	0.088135 (0.017939)	-0.019331 (0.006661)	0.092602 (0.016015)	-0.014835 (0.006819)	0.070888 (0.010328)	-0.020884 (0.010328)	0.091933 (0.007906)	-0.015742 (0.006779)	0.106237 (0.011504)
Trade	0.045862 (0.003547)	0.022808 (0.012414)	0.032943 (0.002845)	0.033412 (0.006002)	0.044376 (0.001789)	0.010364 (0.012979)	0.037392 (0.004890)	0.072111 (0.004346)	0.040031 (0.005250)	0.024071 (0.005035)
Log(Life)	11.01250 (3.149283)	-101.6554 (12.84614)	11.95386 (3.439039)	-159.0880 (15.19876)	7.314216 (3.145910)	-57.84364 (44.51307)	11.10210 (2.529530)	-78.43004 (5.518117)	13.05858 (2.714791)	-27.08793 (9.921466)
Log(RGD PC)	3.409527 (0.431418)	47.99049 (4.019042)	1.418640 (1.015334)	48.69213 (2.650396)	3.237281 (0.298677)	44.51307 (2.528552)	3.414913 (0.488681)	24.33513 (3.815354)	1.780866 (0.450932)	40.47343 (2.588246)
DC	-0.029514 (0.005168)	-0.023754 (0.008407)	-0.002896 (0.007574)	0.036917 (0.010501)	-0.019442 (0.003930)	0.011074 (0.004602)	-0.024665 (0.004986)	0.030576 (0.004986)	-0.008628 (0.004107)	0.007734 (0.004809)
ICRG	-0.070671 (0.008754)	-0.437090 (0.068579)	0.073589 (0.014754)	0.267554 (0.069138)	-0.018355 (0.008688)	-0.024112 (0.032850)	-0.036123 (0.018748)	-0.025767 (0.019351)	0.048543 (0.011394)	-0.099207 (0.033904)
Financial Instrument	-1.265695 (20.83934)	441.5280 (63.63639)	-36.85829 (15.78905)	16.26382 (8596.914)	-170.7603 (34.69797)	238.4060 (51.37766)	-106.7627 (25.75120)	-50.79728 (43.14692)	-78.72050 (27.35694)	254.4906 (50.98908)
FI*ICRG	3.534048 (0.580694)	-14.49953 (2.181763)	1.031610 (0.428441)	-402.2421 (214.0740)	4.819664 (0.970290)	-7.952374 (1.813062)	2.953031 (0.703811)	0.634210 (1.104889)	2.240190 (0.763822)	-8.217025 (1.508118)
FI*ICRG ²	-0.024479 (0.004057)	0.112000 (0.017277)	-0.007364 (0.002912)	2.481058 (1.330336)	-0.033935 (0.006802)	0.063318 (0.014915)	-0.020462 (0.004831)	0.000006 (0.007092)	-0.015941 (0.005350)	0.063529 (0.011056)
m1	0.405780 (0.703862)	0.365666 (0.686278)	0.616080 (0.602173)	0.336573 (0.565676)	0.353849 (0.757828)	0.265646 (0.448765)	0.456869 (0.674494)	0.273863 (0.456093)	0.301275 (0.625440)	0.341189 (0.652845)
Financial Instrument/Market	EQ-EM	EQ-DM	FC/EM	FC/DM	GS/EM	GS/DM	MM/EM	MM/DM	RE/EM	RE/DM
NER-1	0.403551 (0.040652)	-0.032858 (0.018392)	0.486616 (0.027948)	-0.179121 (0.021567)	0.432193 (0.034832)	-0.080686 (0.017621)	0.423567 (0.062205)	-0.039658 (0.016709)	0.347653 (0.026273)	0.058348 (0.015754)
Sec	-0.002629 (0.006300)	0.086751 (0.008927)	-0.003617 (0.007372)	0.061068 (0.010938)	-0.010600 (0.009859)	0.075007 (0.008356)	-0.009092 (0.014278)	0.067936 (0.013698)	-0.004485 (0.005072)	0.081718 (0.014584)
Trade	0.041908 (0.002233)	0.032904 (0.004934)	0.040229 (0.002478)	0.028510 (0.014505)	0.028128 (0.002418)	0.021282 (0.009488)	0.034828 (0.003838)	0.020883 (0.010756)	0.020883 (0.001829)	0.050670 (0.004884)
Log(Life)	9.838475 (1.381324)	-72.56561 (10.54935)	12.77225 (1.978707)	-65.22556 (14.02192)	7.272073 (2.348903)	-26.11689 (8.970766)	11.85290 (2.030775)	-86.20377 (9.139510)	6.321199 (1.291906)	0.004884 (8.939196)
Log(RGD PC)	4.300999 (0.297319)	38.24961 (1.936003)	1.795281 (0.301116)	36.67886 (2.103889)	3.536725 (0.302017)	38.90134 (1.909442)	2.867984 (0.523684)	40.79691 (3.831315)	3.795012 (0.243952)	33.12957 (1.514850)
DC	-0.039197 (0.005776)	0.024317 (0.003125)	-0.006784 (0.002724)	0.020401 (0.006989)	-0.028248 (0.003931)	0.012529 (0.004062)	-0.020605 (0.009170)	0.000557 (0.006208)	-0.017620 (0.004077)	0.031680 (0.003477)
ICRG	-0.070204 (0.008836)	-0.060127 (0.020890)	0.036995 (0.008643)	-0.137905 (0.032734)	-0.028261 (0.005883)	0.077173 (0.013310)	0.077873 (0.013310)	-0.156248 (0.007928)	0.111813 (0.014676)	-0.081414 (0.014676)
Financial Instrument	-189.0863 (29.06624)	191.8616 (26.70855)	-132.0441 (21.00607)	248.5297 (33.46289)	-146.0881 (28.11768)	467.9363 (73.37057)	-135.8472 (26.62879)	356.2027 (114.4610)	-142.6009 (9.205914)	-276.6574 (33.08232)
FI*ICRG	5.242914 (0.799178)	-6.289985 (0.887431)	3.714875 (0.585559)	-8.218486 (1.004705)	4.046599 (0.786706)	-14.45890 (2.304043)	3.889115 (0.728399)	11.56485 (3.854788)	0.478300 (0.269289)	6.521817 (0.800101)

(continued on next page)

Table 3 (continued)

Financial Instrument/ Market	EQ-EM	EQ-DM	FC/EM	FC/DM	GS/EM	GS/DM	MM/EM	MM/DM	RE/EM	RE/DM
F1*ICRG ²	-0.036210 (0.005508)	0.048420 (0.007052)	-0.026314 (0.004081)	0.064356 (0.007502)	-0.027782 0.005471	0.108848 0.017491	-0.028005 0.004997	0.089514 0.030517	-0.029547 0.001959	-0.038144 0.004806
m1	0.280787	0.267219	0.309223	0.657783	0.347247	0.595613	0.517938	0.581392	0.332971	0.385126
m2	0.867096	0.393028	0.756617	0.707205	0.687775	0.429606	0.725051	0.638264	0.722509	0.175583

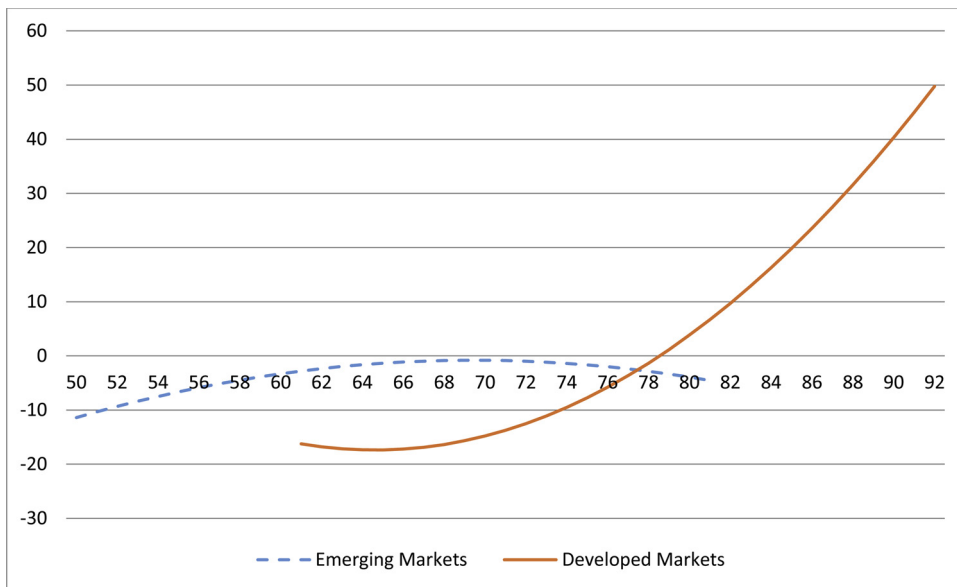


Fig. 1. The effects of controls on money market capital flows on the new entry rate for entrepreneurs in emerging and developed markets by ICRG score.

countries, the effect of capital controls on entrepreneurship in emerging market countries is less negative. This indicates that in controlling for political risk, on average the development of institutions in emerging markets is such that the imposition of capital controls does not have as destructive effect on entrepreneurial activity as the imposition of capital controls in developed markets.

The results for the remaining areas are similar. The least similar is for capital controls on real estate related cash flows. However, even here, the broad results elucidated above still hold. The overall effects of capital controls on real estate cash flows for capital controls is negative, the results are generally stronger for developed markets than emerging markets, and for low levels of political risk, the effects are reversed (Fig. 2).

5. Conclusions

For a group of 62 developed and developing countries, the relationship between capital controls and the rate of new business formation is examined. The results here indicate that: 1) the imposition of financial controls do not have a negative effect of entrepreneurship in both emerging and developed economies. Controlling for the effects of political risk with capital controls, capital controls have a negative effect on entrepreneurialism in emerging market countries, but can have a positive effect on

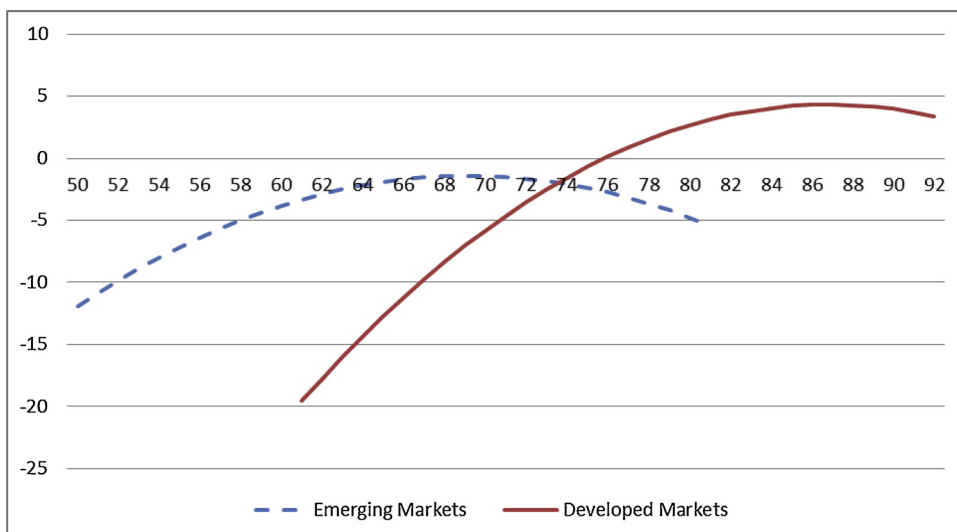


Fig. 2. The effects of controls on real estate capital flows on the new entry rate for entrepreneurs in emerging and developed markets by ICRG score.

entrepreneurialism in developed markets; 2) : The imposition of financial controls have a greater effect in magnitude in developed markets than in emerging markets, indicating that development of the internal financial system plays a role in extenuating the effects of capital controls; 3) The effect of the imposition of financial controls is not uniform across the various instruments. In particular, the imposition of capital controls on derivatives and real estate in developed markets is associated with a negative effect on entrepreneurialism, unlike for other financial instruments in developed markets. However, in emerging markets, the effects on entrepreneurialism of financial controls seems to be more uniform when controlling for the interaction of political risk and financial controls; 4) In controlling for the effects of political risk on financial liberalization, the effects of financial controls between emerging markets and developed markets are not the same. In general, the imposition of financial controls in emerging markets is associated with a decline in entrepreneurialism, while the imposition of such controls in developed markets is associated with an increase in entrepreneurial activity.

In addition, the results here indicate that political risk has differing effects on entrepreneurialism in developed and emerging markets in conjunction with the imposition of capital controls. For emerging markets, lower political risk results in capital controls having smaller negative effects on entrepreneurialism, though this effect diminishes as political risk gets lower. For developed markets, lower political risk results in capital controls having a negative effect on entrepreneurialism at first, but as the level of political risk gets even lower, the effect of capital controls reverse and are associated with higher levels of entrepreneur behavior.

The results here challenge the hypothesis of Tracey and Phillips (2011) that entrepreneurs in emerging markets can both take advantage of the uncertainty due to lack of institutionalization in order to establish new businesses and play a key role in the development of relationships by influencing the process of institutionalization. The imposition of financial controls should create opportunities for entrepreneurs that increase as the level of political risk rises, as the measure of political risk used here also reflects the level of institutionalization. However, the opposite is found in the results here. In emerging markets, the imposition of financial controls only increases entrepreneurialism as the level of political risk falls in emerging markets. In fact, the strongest results in favor of the Tracey and Phillips hypothesis comes from developed markets with very low levels of political risk that impose financial controls! Here, a positive association between financial controls and entrepreneurship is found.

Lastly, the results here indicate that the effects of foreign financial flows on entrepreneurialism is not uniform across the types of financial flows allowed. For developed markets, derivatives and real estate associated controls have a negative effect on entrepreneurialism, unlike the other types. This indicates that solely using foreign direct investment as a proxy of total foreign financials flows on entrepreneurial behavior in developed markets may at least be suspect.

Future research can improve on the above results by investigating the institutional and individual factors that lead to entrepreneurship in light of the availability of the AREAER dataset. In particular, the reasons for the differential effects of derivatives and real estate controls may be of interest. Plus, the differences in the effects of capital controls on entrepreneurialism in developed and emerging markets needs more in-depth study on the individual entrepreneur-level, controlling for individual characteristics.

Acknowledgements

The author wishes to thank an anonymous referee for insightful comments that improved the article.

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