JEL Classification: F32, O16, L26
Keywords: capital controls, firm entry, entrepreneurship, Bayesian model averaging

Capital Controls and the Determinants of Entrepreneurship*

Christopher A. HARTWELL—Kozminski University, Dept. of International Management, Warsaw (chartwell@kozminski.edu.pl)

Abstract
There is consensus on the need for entrepreneurship (a micro phenomenon) to drive the larger macroeconomy. However, little research has been done on how specific macroeconomic policies might in turn impact entrepreneurship. This paper examines how one particular macroeconomic policy, capital account openness, affects the creation of firms in a country. Using a new dataset of 112 countries from 2004–2011 and utilizing system-GMM and Bayesian model averaging (BMA) techniques I find that capital openness is strongly correlated with new firm entry, a result that holds across several specifications and for both developed and emerging markets. We can conclude that governments looking to promote entrepreneurship should avoid capital controls and instead encourage other investment climate reforms.

1. Introduction

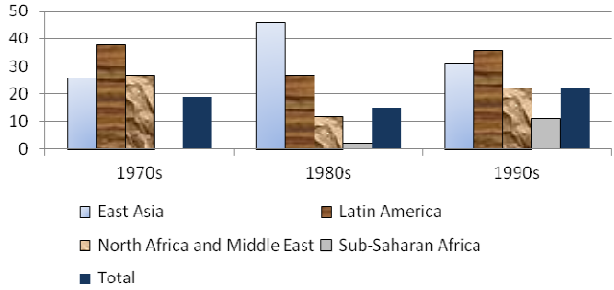
Over the past two decades, the role of entrepreneurship in driving economic growth has become an important research topic in economics (King and Levine, 1993; Wennekers and Thurik, 1999; Acs and Szerb, 2007). In tandem with this realization of the importance of entrepreneurship, governments around the world have enacted various policies to promote enterprise development, focusing on microeconomic incentives such as favorable tax regimes, subsidies, growth and innovation funding, or simplified business regulations for small and medium-sized enterprises (see Acs and Stough, 2008, for an overview of policy responses for fostering entrepreneurship).

While there have been a plethora of microeconomic responses to the need for enterprise development, at the same time there has been comparatively less emphasis on the effect and use of macroeconomic policies on this same goal of entrepreneurship. Indeed, in many instances macroeconomic policies, put in place to influence predominantly macroeconomic aggregates, may have counterproductive or deleterious effects on firm creation via direct costs or via second-order effects such as volatility or hampering expectation formation. With large governments unable to keep track of policies or even actively working on contradictory goals (Way, 2000), macroeconomic policies can negate carefully designed microeconomic initiatives.

One such macroeconomic instrument in this vein is capital controls, which are utilized for a variety of purposes but mainly focus on purely macroeconomic effects such as correcting a balance of payments surplus, preventing potentially volatile inflows or preventing real appreciation of the exchange rate (Neely, 1999). From a microeconomic standpoint, restrictions on access to external finance may hamper

* This paper appeared several versions ago in a less-technical working paper format at the Institute for Emerging Market Studies (IEMS). I would like to thank Mikhail Volkov for his diligent research assistance.

Figure 1 Percentage of Countries with Open Capital Accounts, 1970–2000



Source: Based on data from Asiedu and Lien (2004)

businesses operating in an already capital-scarce environment; moreover, capital controls may also correlate with many other entrepreneurship-hampering traits, such as increased rent-seeking and corruption (Dreher and Siemers, 2009) as well as fostering oligopolistic market structures that discourage small-firm entry (Luiz, 2002).

The question of capital controls and their effect on the microeconomics of entrepreneurship has been given added importance in recent years with the accelerating trend globally in favor of capital controls (or at least in the closing of formerly open capital accounts). The use of controls in Iceland during the global financial crisis, explicitly supported by the International Monetary Fund (IMF) as a way to stem capital flight, appeared to signal a new round of capital account tightening, with disparate countries such as Brazil, Taiwan and Thailand imposing taxes or requirements explicitly designed to cool capital movements.[1] This uptick in controls on international capital flows followed a period of relative liberalization, although, as *Figure 1* shows, a majority of countries actually did retain some form of control (a reality that directly contradicts Grabel and Chang's (2010) claim that "debilitating neoliberal ideology" removed the leverage for capital controls in emerging markets).

Given the potential harm that can come from capital controls in entrepreneurship, the purpose of this paper is to examine the broader effect of controls on entrepreneurship trends in both developed and emerging markets. To date, there has been little examination of the microeconomic effects of macroeconomic instruments such as capital controls on entrepreneurship in either developed or emerging markets, with the work that does exist either based on single-country case studies (Forbes, 2007) or focusing on macroeconomic determinants alone (Klapper *et al.,* 2006). This paper will seek to bridge this gap in the literature and examine the broader effects of capital controls on entrepreneurship via three unique contributions: first, the empirical strategy will build on the industrial organization literature and control for both microeconomic and macroeconomic factors on a cross-country basis, as well as

[1] Brazil, which saw its currency appreciate by 36% against the US dollar in 2009, imposed a 2% tax in October 2009 on money entering the country exclusively for investing in equities and fixed income instruments, doubling the tax to 4% in October 2010. Also in late 2009, Taiwan banned foreigners from putting money into time deposits. Finally, Thailand, following in the footsteps of Chile in the 1990s, enacted a 30% unremunerated reserve requirement (URR) in December 2006 on all new inflows. Much as in Taiwan, a further 15% tax on foreigners holding Thai government and state-owned bonds enacted in October 2010 was called a "withholding tax".

recognizing the persistence of entrepreneurship; second, the data will extend through and include the global financial crisis, a time that has seen a marked increase in capital control usage; and third, using Bayesian model averaging (BMA), it will introduce model uncertainty into the empirical strategy. Building on earlier work such as Alfaro and Charlton (2008) and Dreher and Gassebner (2013), I find that capital controls do indeed harm entrepreneurship, even when controlling for these other effects.

We will proceed in the following manner: the following section will examine prior research into how capital controls can affect entrepreneurship in theory and in practice, while Section 3 will introduce the empirical strategy to testing the broader effects of controls at the microeconomic level. Section 4 will discuss these results, while Section 5 will conclude with some thoughts about the future of capital mobility and policy recommendations.

2. The Determinants of Entrepreneurship: Theory and Evidence

A rich literature has attempted to examine the determinants of entrepreneurship from both the micro- and macroeconomic perspectives. Much of the groundbreaking work in this area has originated from the industrial organization literature, with papers such as Dunne *et al.* (1988), Acs and Audretsch (1989), Audretsch and Fritsch (1994) and Geroski (1991, 1995) focusing on the firm- and industry-specific factors that enable firm creation. The work on macroeconomic determinants of entrepreneurship has grown out of this early research, extending the previous analyses to incorporate macroeconomic influences as additional explanators for firm entry (Yamawaki, 1991; Mata, 1996; Ilmakunnas and Topi, 1999).

However, despite the move towards a holistic micro/macro view of entrepreneurial determinants, comparatively little work has been done in examining the direct effect of specific policy instruments on firm entry. In particular, capital openness (or closure) can have a major impact on entrepreneurship, but has only been lightly treated in the extant literature. This is not to say that the theoretical effects have not been argued; indeed, a prominent strain in the macroeconomic literature supporting capital controls is that they provide second- or third-order benefits to individual firms by creating stability (Stiglitz *et al.,* 2006) or through protecting financial sector institutions, which then can extend credit (Rodrik, 1998). Others (e.g. Grossman, 1984) have also argued that crowding out longer-term foreign investors may foster home-country entrepreneurship, as international capital flows, and in particular FDI, may crowd out the domestic entrepreneurial class as foreign firms come to dominate.

On the other hand, the theoretical grounding for why capital controls could have deleterious effects on entrepreneurship is far more extensive and, in one sense, fairly clear: any distortion that makes it more difficult to obtain financing or investment should inhibit entrepreneurship and firm expansion.[2] Prati, Schindler and Valenzuela (2012, p. 1,649) expand on this point, noting that "capital controls can substantially limit access to, and raise the cost of, foreign currency debt, especially

[2] Interestingly, some authors note that these restraints must actually be binding to influence financing. As Edison and Warnock (2008) discover, capital inflows only increase after a relaxation of capital controls that are rigidly enforced and monitored. Controls that are more observed in the breach than in practice thus are not much of controls at all.

for firms without foreign currency revenues". Government moves towards capital controls can also drive up the risk premium for doing business in a particular country, making the cost of capital (when it is available) more expensive and also a deterrent to firm entry (Yamawaki, 1991). In an emerging market context, this is an important point, as many developing countries have undeveloped capital markets and need to tap foreign funding; capital controls would inhibit this flow of finance. Moreover, limited access to finance would also impact firms disparately, as larger firms tend to have an easier time securing bank lending (or utilizing internal funds), and indeed, researchers have found that countries with less capital account restrictions tend to have more small firms than those that do not (Beck and Demirgüç-Kunt, 2006).

Beyond affecting the supply of capital, controls can also impact the demand side. The creation of capital controls imposes direct regulatory burdens on firms that can increase costs (Dreher and Gassebner, 2013), as firms must invest time in succeeding in the process of investment approval. This deadweight loss also increases the relative cost of investment, leading some firms at the margin to fail (or never come into existence). Of course, there is a further effect that can accrue, as this marginal analysis assumes that firms actually decide to go the legal route; studies done on both developing and developed country firms show a myriad of ways in which businesses avoid capital controls (Goodman and Pauly, 1993; Garber, 1998; Schulze, 2000)—and the longer the controls are in place, the better the private sector gets at avoiding them (Garber, 1998). For our purposes, however, the presence of administrative burdens can weigh more heavily on entrepreneurs than established businesses, as existing firms may be able to evade controls more easily than nascent ones.

In addition to these effects, capital controls can also harm businesses through political economy channels. Capital controls, while a policy choice, are themselves a product of the institutional environment, and several papers have tackled the political economy issues surrounding the decision to liberalize (Schulze, 2000; Brooks and Kurtz, 2007); moreover, works from Chinn and Ito (2006) and Alfaro and Charlton (2008) show that the benefits of capital account openness tend to be preconditioned on the existence of sufficient levels of institutional quality, including better bureaucracy, higher levels of law and order, and lower levels of corruption. Perhaps not surprisingly, these same institutional attributes would also theoretically correlate with higher rates of firm entry, creating a virtuous circle of entrepreneurship.

However, capital controls also influence the institutions around them when and if they are implemented. The choice to create (or repeal) controls can create institutional volatility, which is harmful for longer-term investment decisions such as whether or not to start a firm (Baker *et al.*, 2011), while specific administrative controls such as foreign investment approval processes can be highly discretionary, resulting in the political allocation of capital and thus fostering uncertainty among investors. The empirical evidence is also in favor of capital controls also indirectly and negatively influencing other institutional developments in a country; in particular, Dreher and Siemers (2009) show that a higher level of corruption is associated with more restrictions on a country's capital account, likely due to the political allocation of capital mentioned before (which leads to rent-seeking opportunities, especially at lower—and lower-paid—levels, where applications must

typically be lodged). Capital controls may then be seen to cause institutional deterioration, which in turn would have a detrimental effect on firm entry (Desai *et al.,* 2003).

2.1 Effects of Controls on Entrepreneurship: Previous Empirical Evidence

While the theoretical channels for capital controls to influence entrepreneurship may be well developed, the empirical literature is much thinner and generally relegated to single-country studies. Part of the reason for this state of affairs is that examining the effects of capital controls on entrepreneurship is a difficult task, as it is often hard to disentangle the effects of the controls themselves from other macroeconomic variables and policies (indeed, countries that tend to institute controls have other distortions that can also exert an influence on firm entry). This issue is compounded by the fact that, as noted above, capital controls are generally instituted to influence macroeconomic variables; thus, much scholarship has been produced examining the efficacy of capital controls at a macroeconomic level, with little done on microeconomic effects.

On a cross-country basis, there are a few notable exceptions. Alfaro and Charlton (2008) stand out as an excellent cross-country examination of capital controls and entrepreneurship: using a dataset for 98 countries over three years (1999, 2004 and 2007), they find that "countries with more relaxed capital controls (de jure integration) or receiving a higher volume of foreign capital (de facto integration) were on average more likely to experience greater entrepreneurship proxied by increased activity among new and small firms" (Alfaro and Charlton, 2008, p. 13). However, this work is handicapped by the fact that it only surveys three discrete and non-contiguous years, thus impeding a fuller picture of firm entry dynamics. Moreover, the timeframe of their work also ends before the global financial crisis struck, meaning we have an analysis of capital controls during the first wave (post-Asian crisis), but no such analysis for the second wave of capital controls typified by the Icelandic experience.

Similarly, other papers have touched upon issues related to capital controls and firm entry, but without explicit reference to the debate: for example, Brown, Ongena and Yesin (2011) surveyed 3,101 firms in transition countries and showed that capital openness encourages small firms to borrow internationally in order to meet their financing needs. As noted above, Dreher and Siemers (2009) also examined panel data for 80 countries over 1984–2002, finding that corruption and capital controls go hand-in-hand; when combined with the extensive body of literature relating corruption's depressive effects on firm entry (Dreher and Gassebner, 2013), it is easy to draw the line from capital controls to corruption to dampened entrepreneurship.

However, as already mentioned, the most rigorous empirical work in the area of microeconomic effects of capital controls has focused on the country level, mainly on emerging markets such as India (Stigler, Shaw and Patnaik (2010) show that capital controls impede efficient pricing for domestic shares). But by far the most work on microeconomic (as well as macroeconomic effects) has been concentrated on the two most famous users of controls, Chile and Malaysia. Perhaps more than any other country, Chile is invoked as the model of getting controls right in terms

of controlling macroeconomic effects (Neely, 1999); however, Gallego and Hernandez (2003) and Forbes (2007) both found that the collection of controls known as the *encaje* (strongbox in Spanish) substantially increased the cost of financing for smaller Chilean firms. Forbes (2007) in particular demonstrated that, by 1996–97, larger firms had investment costs of 7–8% on average, while small firms had costs of over 20%. Further econometric evidence showed "no evidence of financial constraints for either smaller or large firms for the period after the *encaje* was lifted, nor any evidence of a significant relationship between firm size and financial constraints" (Forbes, 2007, p. 317).

Malaysia in 1998 is the case offered second only to Chile as the exemplar of the beneficial nature of capital controls.[3] As with Chile, Malaysia's controls also had an impact on firms within the country, albeit in a different manner than under the *encaje*. On the positive side, Johnson *et al.* (2007, p. 541) note that "there is no evidence that controls had lasting costs through affecting Malaysia's access to international portfolio capital" (Johnson *et al.,* 2007, p. 541), meaning firms were able to re-access international finance rather quickly. However, other microeconomic effects were discernible from the imposition of controls, along the lines of Dreher and Gassebner (2013). Research from Johnson *et al.* (2007) and Mitchell and Joseph (2010) found that government-owned firms or firms that were publicly tied in some way to Prime Minister Mahathir Mohammad both benefited more from the capital controls (in terms of their stock returns) and were harmed more by their removal.[4] While some authors have argued that politically connected firms weren't helped *exclusively* (Cozzi and Nissanke (2009)) claim that, because currency stability was enforced under the controls, all industries in the tradable sector benefited), the evidence shows that being politically connected eased the burden of capital controls, while not having connections led to poorer performance and the problems with financing one would expect with restrictions.[5]

Similar effects have been observed as an effect of China's array of capital controls. Much as with Malaysia, political considerations from the ruling Chinese Communist Party have "a systematic, pervasive, persistent bias in financial policies in favor of the least efficient firms in the Chinese economy—state-owned enterprises—at the expense of the most efficient firms", specifically "China's small, entrepreneurial and private enterprises" (Huang, 2006, p. 289). This effect has been identified by entrepreneurs themselves as a binding constraint on obtaining finance (Dorn, 2006), and the World Bank has pointed to the political control of credit as causing "high barriers of entry and exit" (Bai, 2006, p. 14). These effects can be somewhat confirmed in the data, as China has seen less than one new corporation per 1,000 people per year over the past decade, while countries like Hong Kong (with perhaps the most

[3] See Johnson *et al.* (2007) for more information on Malaysia's history of capital account liberalization.

[4] Mitchell and Joseph also make the point that government-owned firms already tended to be larger than the average Malaysian firm, which could also point to less of a need for foreign capital, hence a willingness to support controls.

[5] Cozzi and Nissanke (2009:2) also note a more discriminatory reason for the capital controls: "Interviews conducted with Malaysian government officials also suggest that the imposition of capital controls enabled them to continue implementing affirmative pro-Malay policies without external interference and maintain the domestic ownership of Malaysian firms." Thus, the controls actually were designed to harm the prospects of some firms to the benefit of others.

open capital account in the world) consistently saw entry rates of 10 new firms per 1,000 people—including a high of 19.19 firms per 1,000 people in 2009, in the midst of the global financial crisis.[6]

3. Empirical Strategy

While the research noted above has confirmed some of the theoretical negative effects of controls on firm entry, for the most part it is focused on only one country. Moreover, these earlier studies neglect the latest wave of capital controls installed during the global financial crisis, meaning that there may be more to be learned from the effect of controls in firm entry in recent years. This section details the empirical strategy to test these effects.

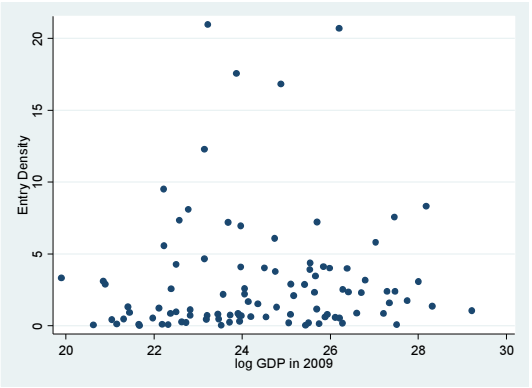
The first challenge will be to find a suitable empirical proxy for entrepreneurship. Wennekers and Thurik (1999, pp. 46–47) define entrepreneurship as "the manifest ability and willingness of individuals" to enter the market in pursuit of economic opportunities; as Klapper *et al.* (2010) correctly note, this entrance into the market is done in the form of a business, thus identifying entrepreneurship as initiating economic activities via the legal process of starting a business. Translating this definition into an empirical measure means utilizing the rates of new business entry as an adequate measure of entrepreneurship in a country. In particular, for this paper (as in, among others, Klapper *et al.* (2010), Klapper and Love (2011), and Dreher and Gassebner (2013)), I utilize "entry density", defined as the number of newly registered corporations per 1,000 working-age people (aged between 15 and 64), derived from the World Bank Group's Entrepreneurship Snapshots database. Capturing all new private limited liability corporations registered in a country, the measure does not distinguish between domestic and foreign ownership but instead gives a snapshot of aggregate firm entry, across all industries, in a particular year.

The entry density variable has both positives and negatives in its use. On the positive side of the ledger, it is first and foremost a widely available, widely used and internationally comparable metric, collected mainly from national business registries of approximately 150 countries. Moreover, the weighted nature of the indicator takes into account differing population sizes of countries (it would be pointless to compare the number of new firms in India versus Bhutan, due to their enormously different sizes), while also scaling appropriately for the size of a country's labor force (Audretsch and Fritsch, 1994). The density variable also exhibits wide variety across countries of even the same development level, meaning that other forces are at play in its determination (see *Figure 2*). Finally, as Audretsch and Fritsch (1994, p. 107) note, the entry density metric fits with the theory of entrepreneurial choice proposed by Evans and Jovanovic (1989), in that the approach recognizes that "each new firm is started by someone", i.e. an entrepreneur, bringing us further confirmation of the encapsulation of entrepreneurship in firm entry rates.

On the negative side, however, there are issues of what the entry density data does *not* encompass. In particular, entry density data is highly aggregated, and does

[6] Given these constraints, Oxelheim (2010) posited a counterfactual, predicting that when China lifts its controls, Chinese firms will be severely disadvantaged by their lack of exposure to and knowledge of the global economy.

Figure 2 Entry Density by Level of (Log) GDP in 2009



not take into account industry-level differences that could have varying effects on entry rates. A rejoinder to this criticism is, as Geroski (1995) notes in his seminal article, cross-industry differences do not persist for long periods of time, meaning that "time-varying features of markets that do not necessarily differ across industries are more likely to explain entry" than industry-specific issues (Perotin 2006, p. 301). While this may be the case, it does not mean that there are not product- or industry-specific forces at play in the data, and thus, in order to capture specific micro-economic factors that may be present but lost in the broader entry density data, I will include specific microeconomic controls in the empirical model specified below.

A further criticism that may be leveled, as noted by Acs *et al.* (2008) and Klapper *et al.* (2010), is that the entry density measure focuses quite heavily on formal sector activities; Acs *et al.* (2008) conclude that it is much easier to incorporate in developed countries and thus there may be a slight bias in relying on formal firm incorporation to measure entrepreneurship. Failing broad-based and accurate shadow economy data, however, entry density still remains a good gauge of willingness to enter the market *in light of these other distortions.* That is, a large shadow economy will likely mean lower entry density in the formal economy; however, our precise research question is to ascertain the effects of macroeconomic policies such as capital controls on entrepreneurship, meaning that reductions in capital controls should *ceteris paribus* lead to more firm entry in the formal sector (and a concomitant decrease in the informal sector). A large shadow economy may indeed reflect small-scale entrepreneurial spirit, but entry density more closely approximates the willingness to enter the market in pursuit of economic opportunities with other distortions held constant.

With these caveats in mind, the full model used in this analysis considers entry density as a function of several different explanators derived from the literature noted above:

$$ED_{it} = \alpha CapitalControls_{it} + \beta Institutions_{it} + \gamma ECON_{it} + \epsilon_{it} \quad (1)$$

Where Capital Controls represents a variable encompassing the extent of capital account openness in a country (see below), Institutions is a vector of three separate institutional quality indicators that should be associated with entrepreneurship, and ECON is a vector of micro- and macroeconomic control variables in country *i* at time *t.*

Table 1 Types of Capital Controls

Administrative	Transaction-based
Threshold investment requirements	Non-interest bearing reserve requirements
Approval procedure required for cross-border transactions	Taxes on portfolio flows (e.g. a Tobin Tax)
Quantitative limits and/or quotas on investment	Discriminatory and disparate taxes on income resulting from foreign assets
	Credit rating requirements for borrowing abroad
Outright prohibition of repatriation or non-convertible currency	Time requirements, including stipulations that incoming funds have to stay in the country for a certain amount of time
	Multiple exchange rate systems
	Increased and discriminatory reporting requirements

Source: Based on information from Ariyoshi *et al.* (2000).

As with entrepreneurship, the proxy for capital controls must also be chosen carefully. In reality, the term "capital controls" refers to not just one policy or administrative lever, but to a series of different mechanisms that range from the minor to the draconian, all with the goal of slowing (or halting) capital movements into or out of a country. Diverse in their conception as well as their execution (*Table 1*), the various controls can be grouped as either "administrative" or direct controls and "transaction-based" or indirect controls, depending on how they are implemented.[7] More importantly, the differing instruments used to distort capital flows are not of uniform stringency, and the by-no-means-exhaustive list shown in *Table 1* shows a wide variation in terms of pressure and compliance that capital controls can require.

Given the variety of capital controls, finding an indicator that can encompass the various facets of these controls is difficult; as Prati, Schindler and Valenzuela (2012, p. 1,650) have noted, "finding a significant link between capital controls and economic outcomes is made difficult also by the fact that some of the most widely used capital control indicators are crude, binary indicators which ignore variations in the degree of capital account restrictiveness". Moreover, much of the quantification of capital account restrictiveness has been based on either a post facto reading of capital flows (see Edison *et al.* (2004) for a review of these indicators) or based on "crude" average indicators that miss gradations in the application of controls.

To attempt to rectify this issue in earlier work dealing with entrepreneurship, this paper utilizes the Chinn-Ito (2008) indicator of financial openness, as has been utilized in *inter alia* Hartwell (2013), Aizenman and Ito (2012), Faruqee and Lee (2009), Kose *et al.* (2009), Joyce and Noy (2008), and Grier and Grier (2007). Taking on higher values the more open a country is to cross-border capital transactions, the Chinn-Ito indicator is constructed as the first standardized principal component

[7] In the literature, the term "market-based" is also utilized but has been eschewed in favor of "transaction-based" so as to differentiate between the actual channels in which implementation is affected. In the author's view, the term "market-based" is also somewhat misleading, as all capital controls are meant to distort the market; the term "transaction-based" thus more completely captures the fact that certain controls are meant to increase transaction costs.

of four separate variables for a country taken from the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER), including the presence of multiple exchange rates; restrictions on current account transactions; the share of a five-year window (encompassing year *t* and the preceding four years) that capital controls were not in effect; and the presence of a requirement to surrender export proceeds.

Thus, the Chinn-Ito approach creates a comprehensive approach that combines both administrative and transaction-based controls, with a heavy weight towards administrative controls but with the inclusion of exchange rates (a transaction-based control). By utilizing the Chinn-Ito indicator, we hope to show more econometric rigor in measuring restrictions beyond either binary indicators or simple averaging (as used in Alfaro and Charlton, 2008), as the index also can measure the *intensity* of capital controls.[8] While there may be a differential effect of administrative versus transaction-cost measures, the Chinn-Ito index reflects the reality that a country that has one form of control often has the other type as well (as in the case of China, Malaysia, Chile, Thailand and other famous examples of controls), suggesting a higher intensity of capital control usage than would be captured by averaging. Moreover, as Chinn and Ito (2006, p. 169) note, "it is almost impossible to distinguish between de jure and de facto controls on capital transactions. Capital control policies are often implemented without explicit policy goals to control the volume and/or type of capital flows", meaning that even governments may not be sure which type of control they are applying. The use of this indicator could then capture some of the real-world complexity of capital controls, which are difficult to disentangle theoretically or empirically.

As noted above, institutions are a key determinant of firm entry (Desai *et al.*, 2003; Alfaro and Charlton, 2008; Estrin and Prevezer, 2010) and the institutional setting of a country may also influence the path and effects of capital account openness. For Equation (1), the institutional effects will be captured by indicators from the International Country Risk Guide (ICRG), including rankings on corruption (to capture the overall business environment of a country), bureaucratic quality (attempting to capture the specific ease of starting a business, apart from the overall business environment), and law and order (which captures both judicial independence and, to some extent, viability of contract enforcement). These variables are presumably important in the decision of an entrepreneur to start a business or not, with better bureaucracy, more law and order, and lower corruption theoretically correlated with more business entry. Given the trend towards non-stationarity in these indicators (see Hartwell (2013) for more discussion), I instead utilize a dummy variable approach for the institutional variables that ranks the countries as having "low", "medium" or "high" levels of institutional quality.[9]

Finally, as controls for the capital openness and institutional indicators, this paper will utilize a similar approach as Ilmakunnas and Topi (1999), Klapper *et al.* (2006), Alfaro and Charlton (2008), and Dreher and Gassebner (2013) and use a series of proven micro- and macroeconomic determinants of firm entry derived from

[8] Thanks to an anonymous referee who highlighted this excellent issue in an early version of this paper.

[9] A full battery of unit root tests, including IPS, LLC, Hadri, Breitung and Fisher-type ADF confirmed that corruption and law and order in this dataset exhibit a unit root.

the literature. The complete list of control variables is shown in the *Appendix*, but a word must be said here about the microeconomic controls; while other country-specific papers have been able to draw on aggregated firm-specific data, this is more difficult in a cross-country context. Thus, a few select microeconomic controls are employed, including, following on from Klapper *et al.* (2006), the extent of "naturally high-entry" sectors in an economy. Under Klapper *et al.'s* (2006) determination, some sectors of the economy are prone to higher entry rates than others, including technology, services and other areas where high start-up costs are not present. Controlling for this differential entry rates against the whole country's entry density will thus act as an effective way to isolate the broader effects of capital controls on entrepreneurship.[10]

The econometric method of analyzing the data will be predicated on the reality that endogeneity is an all-pervasive issue in relation to institutions and firm entry; institutions both influence and are influenced by the development of the economy (and especially, one would assume, choice of firm entry). Moreover, it is expected that this endogeneity would carry over to choice of capital account openness, as the decision to be open internationally may also be influenced by businesses within a country as well as having an impact on the development of firm entry.[11] To correct for this endogeneity, I utilize a system-GMM (GMM-S) model as described by Blundell and Bond (1998), which is robust to heteroskedasticity of unknown form, autocorrelation and endogeneity issues; moreover, it is built specifically for small-T large-N databases such as this. Additionally, given the likelihood of persistence effects in this dataset—i.e. the good times as well as the bad can last for more than one year, signaling for firms to enter—I will also include the lag of the entry density as an explanatory variable in the GMM-S regressions (a tactic that could not be used in a static panel data model).

Finally, given the large number of possible variables included as controls, this paper will pare down the base model of Equation (1) utilizing Bayesian model averaging (BMA) in the vein of Hoeting *et al.* (1999) and Masanjala and Papageorgiou (2008). This approach is a more robust model averaging method than the Extreme Bounds Analysis (EBA) utilized by Dreher and Gassebner, as it allows for incorporation of model uncertainty into the empirical estimation procedure itself (Raftery, 1995).[12] Via BMA, we will specify a more "correct" model for estimating the effects of capital controls on firm entry.

[10] As noted above, most of the literature attempts to examine firm entry either from a firm-up perspective (Dean *et al.*, 1993) or, in terms of macro factors, from a mainly policy-down perspective (Klapper *et al.*, 2006). To my mind, only one paper, Alfaro and Charlton (2008), has combined the two, using a scaled-up firm dataset to examine macroeconomic factors of entrepreneurship. However, the purpose of this paper is to focus on capital controls on the aggregate economy rather than on microeconomic issues; thus, the inclusions of microeconomic factors are taken as a control (given their proven influence), but we are less interested in the examination of firm-level determinants of entry in the presence of controls and more so in the examination of *aggregate entrepreneurship trends* in an economy *vis à vis* capital controls. In this case, microeconomic and firm-level factors may be incredibly important for determining entry density, but I am looking at whole-economy effects of capital controls rather than the impact on the individual firm and *vice versa*.

[11] Moreover, as noted above, governments are not always quite sure why they set capital controls, which argues for some measure of endogeneity; that is, controls are instituted in response to capital flows rather than to prevent them (Cardoso and Goldfajn, 1998).

[12] Angrist and Pischke (2010) note that EBA exhibits a much more ad-hoc nature, while also failing to confer any new information beyond conventional regression.

Table 2 Entry Density vs. Capital Openness and Controls, All Countries

	1	2	3	4	5	6
Variable	***GMM-S***	***BMA***	***GMM-S***	***GMM-S***	***GMM-S***	***GMM-S***
Capital Openness	0.92	0.21	0.88	0.30	0.82	0.32
	0.91	*1.00*	*3.11***	*3.10***	*2.84***	*3.22***
Macroeconomic variables						
GDP growth rate	0.07	0.00				
	1.53	*0.05*				
Domestic Credit to Private Sector	0.02	0.03	0.03	0.01	0.03	0.01
	*1.76**	*1.00*	*3.10***	*1.09*	*3.43***	*1.25*
Unemployment rate	-0.02	-0.14	-0.16	-0.02	-0.15	-0.03
	0.14	*1.00*	*1.49*	*0.46*	*1.28*	*0.59*
Initial GDP (2004)	-1.23	-1.37	-1.35	-0.14	-1.31	-0.20
	1.50	*1.00*	*5.27***	*0.87*	*4.71***	*1.51*
Corporate Tax Rate	0.06	0.01				
	0.60	*0.28*				
Urbanization (%)	0.07	0.06	0.09	0.002	0.09	0.001
	0.45	*1.00*	*2.08**	*0.09*	*2.12**	*0.07*
Entry Density (-1)				0.83		0.81
				*7.57***		*8.09***
Microeconomic variables						
Services value-added to GDP	0.02	0.01				
	0.16	*0.15*				
SME Share of Employment	-0.06	-0.002				
	0.95	*0.11*				
Cost of Business Start-up Procedures	-0.02	-0.04	-0.04	-0.01	-0.04	-0.01
	0.55	*1.00*	*2.20**	*1.73**	*1.89**	*2.31**
Time Required to Start a Business	-0.01	0.01				
	0.70	*0.33*				
Institutional Variables						
Bureaucratic Quality						
Medium	0.93	0.02				
	0.50	*0.06*				
Low	0.78	-0.01				
	0.41	*0.05*				
Law and Order						
Medium	-0.004	-0.07				
	0.00	*0.10*				
Low	1.60	-0.04				
	0.38	*0.06*				
Corruption						
Medium	-1.00	-0.11				
	0.54	*0.25*				
Low	-0.62	0.01				
	0.33	*0.09*				
Constant	27.93		29.95	3.44	28.73	5.36
	*1.78**		*4.56***	*1.05*	*3.62***	*1.95**

N	405	405	524	450	524	450
number of instruments	33		92	92	99	98
Hansen-J (p)	0.687		0.67	0.781	0.67	0.724
AR(2) (p)	0.277		0.174	0.36	0.159	0.235
lag(s)	1 (collapsed)		2	2	2	2
time dummies?	no		no	no	yes	yes

Notes: Absolute values of *t*-statistics are under the coefficients, apart from Column 2, which shows the posterior inclusion probability (PIP). * denotes significance at the 10% level, while ** denotes significance at the 1% level. Robust standard errors used for all specifications. BMA specifications include all variables with a posterior inclusion probability of 1.00, obtained via the command bma in Stata 13.

4. Results and Discussion

Table 2 shows the results of several combinations of variables in order to ascertain the effect of capital controls on firm entry. The first column shows all possible control variables included in the model, including institutional, macroeconomic and microeconomic factors, with all variables treated as endogenous. The results are as expected for such a crowded model: only domestic credit enters as significant, while the model is tainted by white noise in the form of many extraneous variables (and capital openness is positively correlated but insignificant). Moreover, the inclusion of so many variables made utilization of the GMM-S estimator difficult, as, following Roodman's (2009) injunction against overproliferation of instruments, only a collapsing of the instrument matrix at one lag was possible.

Given the poor and crowded results of this model, Column 2 shows the Bayesian Model Averaging (BMA) results on this baseline, running 524,288 separate models to ascertain which variables should be included in a more parsimonious specification. For the most part, the BMA results were clear-cut; either the variables were highly significant (with posterior inclusion probabilities of 1.00) or they were incredibly insignificant, with little middle ground. This made paring down the model much easier than if there were many marginal controls and left us with a set of controls including domestic credit, the initial level of GDP, the unemployment rate, the percentage of the country urbanized, and the cost of business start-up procedures, in addition to the capital openness metric.

Columns 3–6 show the models obtained using the BMA analysis, and their post-estimation statistics are a great improvement from the "noisy" baseline. Column 3 first shows the parsimonious version of the model in Column 1, and capital openness enters as positive and highly significant. This effect holds if we control for entry density persistence via inclusion of a lag of density, albeit at a lower magnitude (Column 4), while the Hansen and AR(2) tests confirm the validity of the GMM approach (and the difference-in-Hansen tests, not reported in *Table 2*, show the validity of the instrument sets utilized, with *p* values of 0.659 and 0.963).

Finally, as this timeframe includes the global financial crisis, there is of course a strong possibility of unobserved correlations across individual countries (an issue that would violate the assumptions of the GMM modeling, which requires no panel correlation in the errors). In order to combat this possibility, I introduce time dummies in Columns 5 and 6 to eliminate these possible correlations across individuals (the time dummies are treated as exogenous instruments for the purposes of the GMM

modeling). In both models (excluding and including a lag of the dependent variable), capital openness is positively and significantly correlated with higher entry density; with the lag included, a one unit increase in the Chinn-Ito indicator corresponds to approximately three more firms per 10,000 people, a small absolute increase but one equal to the entire entry annual density of Algeria. This is also the second largest influence behind the lag of entry density, which, while less economically interesting, shows the persistence of entry rates (especially over such a small time period).

4.1 Robustness Tests

These results are consistent across various specifications of the GMM model, but in order to test the consistency of the effect of capital controls on entrepreneurship, *Table 3* shows a series of robustness tests to verify the previous results. In the first instance, while the Chinn-Ito measure is somewhat of a hybrid between an objective and subjective measure for capital control intensity, perhaps a purely objective measure for capital openness would better capture the *de facto* effects of capital controls. To this end, and following from Alfaro and Charlton (2008), I include net inflows of FDI to GDP as a *de facto* control of capital openness; while the FDI indicator may show some unreliability due both to its capture of several effects beyond capital openness (El-Shagi, 2012) and its only moderate empirical association with capital openness (Noy and Vu, 2007), it still provides a comparatively strong indicator of the extent of capital controls. The results of using this indicator instead of the Chinn-Ito metric are shown in Column 1 of *Table 3*, which builds on the last model of *Table 2*, including the lag of entry density and time dummies (for complete model accuracy, the BMA analysis was rerun on a further 524,288 models but the controls remained the same as when the Chinn-Ito measure was included). The inclusion of FDI net inflows shows a similar, albeit smaller, effect to the earlier regressions, positive and significant but at a magnitude approximately one-tenth of that when the Chinn-Ito measure was used. This effect, again, may be due to the capture of other effects in the FDI inflow variable, but does confirm the direction and significance of capital openness for firm entry.[13]

Another interesting result from the earlier regressions was that institutions uniformly entered into the model as insignificant. It is feasible that this result came about through measurement error or, more likely, that we included the wrong institutions that would be crucial for business entry. For example, Desai *et al.* (2003) show that "greater fairness and greater protection of property rights increase entry rates", arguing for inclusion of a property rights measure instead of the government-based measures originally included. Following on from Clague *et al.* (1996), I thus include "contract-intensive money" as the objective indicator for property rights; defined as the proportion of money outside the formal financial sector to all money (or M2 less money outside depository corporations as a proportion of all M2), higher values should indicate higher property rights. Rerunning the BMA analysis yields a new control, in the form of low bureaucratic quality, but in general the model

[13] On the whole, however, the equation is more poorly specified; due to autocorrelation issues, a deeper lag needed to be used than in the previous model, while the behavior of the controls appeared at odds with the earlier analysis. Thus, the inclusion of FDI should be seen as a confirmation of the earlier results but in reality such inclusion results in a much less efficient model.

Table 3 Robustness Tests

	1	2	3
Variable	**GMM-S**	**GMM-S**	**GMM-S**
Capital Openness (FDI net inflows)	0.03		
	*2.23**		
Capital Openness (Chinn-Ito)		0.31	0.13
		*2.55***	*2.15**
Macroeconomic variables			
Domestic Credit to Private Sector	0.001	0.004	
	0.14	*1.05*	
Unemployment rate	0.07	-0.01	
	*1.79**	*0.11*	
Initial GDP (2004)	0.23	-0.01	-0.04
	*1.77**	*0.02*	*2.02**
Urbanization (%)	-0.03	-0.003	
	*2.15**	*0.18*	
Entry Density (-1)	0.88	0.83	0.84
	*11.80***	*7.78***	*17.42***
Microeconomic variables			
Cost of Business Start-up Procedures	-0.002	-0.01	-0.002
	0.45	*1.43*	*1.86**
Time required to start a business			-0.0002
			0.24
Services sector, % of GDP			0.02
			*1.86**
Institutional Variables			
Property Rights		-2.42	
		1.27	
Low Bureaucratic Quality		-0.88	
		1.39	
High Corruption			0.30
			1.34
Constant	-4.34	2.75	0.51
	1.42	*0.53*	*0.71*
N	455	434	436
number of instruments	51	78	80
Hansen-J (p)	0.446	0.558	0.658
AR(2) (p)	0.167	0.55	0.686
lag(s)	1	1	1
time dummies?	yes	yes	yes

Notes: Absolute values of *t*-statistics are under the coefficients. * denotes significance at the 10% level, while ** denotes significance at the 1% level. Two-step procedure and robust standard errors used for all specifications.

remains the same and is reported in Column 2; property rights actually enter into the equation as negative but insignificant, while capital openness remains a positive and significant explanator of firm entry.

A final robustness test revolves around the question, does this effect hold for emerging market economies only? One can plausibly conjecture that entrepreneurial activities would respond differently in emerging economies to capital controls than in developed economies; in the first instance, emerging markets may have smaller-scale firms that do not rely on foreign financing and thus changes in capital controls may not affect entry decisions. Moreover, one of the arguments in favor of capital controls is their protectionist nature, in that they may shield "infant industries" from the capricious whims of international capital, thus increasing stability and presumably increasing firm entry. On the other hand, however, emerging markets are notoriously labor-rich and capital-scarce, and denying a further source of capital may have disproportionate negative effects much larger here than in OECD countries.

To test these effects, the analysis is rerun using only emerging economies in Column 3 of *Table 3* and including the Chinn-Ito indicator of capital openness.[14] A rerun of the BMA analysis reveals that the microeconomic variables appear to be more significant in the emerging market context, with the services sector value added and the two Doing Business indicators meriting inclusion (similarly, corruption becomes significant across models). The revised specification with the additional controls yields the same result, with capital openness being a significant positive explanator of firm entry. This may show that a lack of capital controls can help firms tap foreign capital, which may be even more important for growth; the lack of significance of domestic credit (revealed during the BMA analysis) may mean that foreign banks can provide the "right" kind of capital or more of it, thus encouraging firm entry.

5. Conclusion

This paper has built upon both country-specific and cross-country studies from the firm entry literature, extending the analysis to include the global financial crisis, and focused on the specific effects of open capital accounts on entrepreneurship. The results show that, while capital controls may afford a *government* some "breathing space" (Goodman and Pauly, 1993) for its macroeconomic policies, they have a cost for the real *economy* in countries that enact them, especially, as shown in this paper, at the microeconomic level. These results holds for both developed and emerging market economies over the period 2004–11, with firm entry strongly influenced by prior period entry rates, credit availability, initial levels of economic activity and, as this paper intended to prove, capital account openness.

The future research agenda from this paper would involve going deeper into the microeconomics of firm entry and undertaking extensive firm- and industry-level matching with measures of capital openness. As this paper attempts to take a broader cross-country focus on entrepreneurship trends, some industry- or firm-level specific traits influencing entrepreneurship have been necessarily left out; in particular, culture, societal attitudes and obligations, and other micro issues such as specific industry exigencies can all influence the individual's decision to start his or her own

[14] Emerging economies are defined here as those not belonging to the OECD.

business. However, the results of this paper show that while the *desire* to open a business may differ from country to country, actually opening a business successfully is tempered by the ease of doing so. Capital controls simply make it harder for businesses to get started by restricting available capital, as well as by engendering other distortions (such as distortion of relative prices or capital planning and decision-making) that are correlated with low firm creation. I am confident that this result will continue to be explored in the presence of other firm-level determinants for entry.

From a policy standpoint, these results suggest that enacting capital controls may be the worst remedy for governments seeking to stimulate entrepreneurship. Indeed, unlike Grabel and Chang's (2010) assertion, it would be a debilitating *anti-liberal* ideology that would do harm to countries and the businesses therein. Rather than focusing on building barriers, governments should encourage entrepreneurship across a broad variety of fronts; while traditional innovation policy, including support of human capital development, can yield targeted dividends, attention must also be paid to investment climate issues such as capital openness. Concentrating on getting the macroeconomic fundamentals right will encourage stability and create an environment that will allow entrepreneurs to realize their plans.

APPENDIX

Table A1 Control Variables

Variable	Measurement	Use	Expectation	Source
		Macroeconomic Variables		
GDP growth	%	Proxy for current economic conditions	Growing economies should see more firms entering to take advantage of greater opportunities	WDI
Domestic credit to the private sector	% of GDP	Used to isolate levels of financing available to the private sector (and, as a second-order effect, as a proxy for financial depth)	Greater credit availability should correlate with higher firm entry, as the availability of credit may help firms get started or convince entrepreneurs at the margins to move towards starting their own firms. Moreover, if domestic credit is still available in the presence of capital controls, we might see that the substitution of domestic credit would render financial openness insignificant	WDI
Urbanization	% of total population living in urban areas	Proxy for both the development level of a country and relative importance of manufacturing/services relative to agriculture (which tends to be rural)	Urban concentrations should increase the likelihood of firm entry (Campbell (1996) and Arauzo-Carod and Teruel-Carrizosa (2005))	WDI
Corporate tax rate	Maximum % rate	Capture cost of operating a business, as well as governmental policies and attitudes towards business in general	Higher tax rates on should have adverse effects on firm entry , as in Djankov *et al.* (2010) and Kneller and MacGowan (2012)	WDI
Unemployment rate	%	Proxy for labor market policies	Negative: policies such as employment protection legislation, difficulties in hiring/firing, and the minimum wage that cause higher unemployment could also form a disincentive for firm entry.	WDI
		Microeconomic Variables		
SME share of employment	%	Capture industry-level determinants that may pull firms into the market	Ambiguous: Higher SME shares of employment may encourage start-ups, but could also show limited expansion possibilities, discouraging entrepreneurship	WDI

Variable	Measurement	Use	Expectation	Source
Growth of services sector	% change, as % of GDP	Proxy for opportunities in a sector that has ease of firm entry	Positive: The services sector is an area where firm entry should be fairly easy, due to low start-up costs. Thus, a larger service sector should also see higher rates of firm entry	WDI
Cost to start a business	% of gross national income (GNI) per capita	Included to capture overall ease of starting a business	Negative: more costs should deter firm entry	WB DB
Entry procedures	Number of procedures required to start a formal business	Included to capture overall ease of starting a business	Negative: higher numbers of requirements should increase the real cost to starting a business and lower the number of firms in existence	WB DB
		Institutional Variables		
Corruption	Dummy variable based on rescaling of original ICRG scores, which run from 0 to 6: 0 for "Low" (from 4 to 6 in original coding), 1 for "Medium" (from 2.01 to 4 in original coding), and 2 for "High" (<2.0)	Capture informal costs of doing a business	More corruption will be a deterrent for firms to enter the formal economy	ICRG
Law and Order	Dummy variable based on original ICRG scores, which run from 0 to 6: 0 for "Low" (from 0 to 2 in original coding), 1 for "Medium" (from 2.01 to 4 in original coding), and 2 for "High" (>4.0)	Proxy for general respect for the law	Higher scores on law and order should correlate with higher firm entry	ICRG
Bureaucratic Quality	Dummy variable based on original ICRG scores, which run from 0 to 4: 0 for "Low" (from 0 to 1 in original coding), 1 for "Medium" (from 1.01 to 2.99 in original coding), and 2 for "High" (>3.0)	Captures administrative ease of working with the government, independent of informal corruption or formal tax policies	A better bureaucracy should make it easier for firms to enter the economy	ICRG
Property Rights	Contract-intensive money, or (M2-C)/M2, where C is money outside of formal financial institutions	Proxy for security of property rights in a country	Positive: Higher levels of property rights should allow for more entrepreneurship	Author's calcula-tions from IMF Inter-national Financial Statistics

REFERENCES

Acs ZJ, Audretsch DB (1989): Small-firm entry in US manufacturing. *Economica*, 56(222):255–265.

Acs ZJ, Stough RR (2008): Introduction to public policy in an entrepreneurial society. In: Acs ZJ, Stough RR (Eds.): *Public Policy in an Entrepreneurial Economy*. New York, Springer, pp. 1–22.

Acs ZJ, Szerb L (2007): Entrepreneurship, economic growth and public policy. *Small Business Economics*, 28(2-3):109–122.

Acs ZJ, Desai S, Klapper LF (2008): What does "entrepreneurship" data really show? *Small Business Economics*, 31(3):265–281.

Aizenman J, Ito H (2012): Trilemma policy convergence patterns and output volatility. *North American Journal of Economics and Finance*, 23(3):269–285.

Alfaro L, Charlton A (2008): International Financial Integration and Entrepreneurial Firm Activity. *Harvard Business School Working Paper*, no. 07-012, www.hbs.edu/research/pdf/07-012.pdf. Accessed November 9, 2012.

Angrist JD, Pischke JS (2010): The Credibility Revolution in Empirical Economics: How Better Research Design is Taking the Con out of Econometrics. *Journal of Economic Perspectives*, 24(2): 3–30.

Arauzo-Carod J-M, Teruel-Carrizosa M (2005): An Urban Approach to Firm Entry: The Effect of Urban Size. *Growth and Change*, 36(4):508–528.

Ariyoshi A (2000): *Capital Controls: Country Experiences with Their Use and Liberalization*. Washington DC, IMF Press.

Asiedu E, Lien D (2004): Capital Controls and Foreign Direct Investment. *World Development*, 32(3):479–490.

Audretsch DB, Fritsch M (1994): On the measurement of entry rates. *Empirica*, 21(1):105–113.

Bai C-E (2006): *The Domestic Financial System and Capital Flows: China*. World Bank mimeo, http://siteresources.worldbank.org/INTCHIINDGLOECO/Resources/TheDomesticFinancialSystemandCapitalFlows-China.pdf. Accessed November 13, 2012.

Baker SR, Bloom N, Davis S (2011): Measuring Economic Policy Uncertainty. University of Colorado website, http://leeds-faculty.colorado.edu/bhagat/PolicyUncertainty-davis.pdf. Accessed November 19, 2012.

Beck T, Demirguç-Kunt A (2006): Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30(11):2931–2943.

Blundell R, Bond S (1998): Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics*, 87(1):115–143.

Brooks SM, Kurtz MJ (2007): Capital, trade, and the political economies of reform. *American Journal of Political Science*, 51(4):703–720.

Brown M, Ongena S, Yeşin P (2011): Foreign currency borrowing by small firms in the transition economies. *Journal of Financial Intermediation*, 20(3):285–302.

Campbell CM (1996): The effects of state and industry economic conditions on new firm entry. *Journal of Economics and Business*, 48(2):167–183.

Cardoso E, Goldfajn I (1998): Capital Flows to Brazil: The Endogeneity of Capital Controls. *IMF Staff Papers*, 45(1):161–202.

Chinn MD, Ito H (2006): What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics*, 81(1):163–192.

Chinn MD, Ito H (2008): A new measure of financial openness. *Journal of Comparative Policy Analysis*, 10(3):309–322.

Clague C, Keefer P, Knack S, Olson M (1996): Property and contract rights in autocracies and democracies. *Journal of Economic Growth*, 1(2):243–276.

Cozzi G, Nissanke M (2009): Capital Controls and the Current Financial Crisis: Revisiting the Malaysian Experience. *Development Viewpoint* (Newsletter of the Centre for Development Policy and Research (CDPR) at the School of Oriental and African Studies), no. 35, http://www.soas.ac.uk/cdpr/publications/dv/file53082.pdf. Accessed November 15, 2012.

Dean TJ, Meyer GD, DeCastro J (1993): Determinants of new-firm formations in manufacturing industries: Industry dynamics, entry barriers, and organizational inertia. *Entrepreneurship Theory and Practice*, 17(2):49–59.

Djankov S, Ganser T, McLiesh C, Ramalho R, Shleifer A (2010): The Effect of Corporate Taxes on Investment and Entrepreneurship. *American Economic Journal*, 2(3):31–64.

Dorn JA (2006): Ending Financial Repression in China. *Cato Economic Development Bulletin*, no. 5, http://www.cato.org/pubs/edb/edb5.pdf. Accessed November 18, 2012.

Dreher A, Gassebner M (2013): Greasing the wheels? The impact of regulations and corruption on firm entry. *Public Choice*, 155(3-4):413–432.

Dreher A, Siemers LH (2009): The nexus between corruption and capital account restrictions. *Public Choice*, 140(1-2):245–265.

Dunne T, Roberts MJ, Samuelson L (1988): Patterns of firm entry and exit in US manufacturing industries. *RAND Journal of Economics*, 19(4):495–515.

Edison HJ, Warnock FE (2008): Cross-border listings, capital controls, and equity flows to emerging markets. *Journal of International Money and Finance*, 27(6):1013–1027.

Edison HJ, Klein MW, Ricci LA, Sløk T (2004): Capital account liberalization and economic performance: Survey and synthesis. *IMF Staff Papers*, 51(2):220–256.

El-Shagi M (2012): Initial evidence from a new database on capital market restrictions. *Panoeconomicus*, 59(3):283–292.

Estrin S, Prevezer M (2010): A survey on institutions and new firm entry: How and why do entry rates differ in emerging markets*? Economic Systems*, 34(3):289–308.

Evans DS, Jovanovic B (1989): An estimated model of entrepreneurial choice under liquidity constraints. *Journal of Political Economy*, 97(4):808–827.

Faruqee H, Lee J (2009): Global dispersion of current accounts: is the universe expanding? *IMF Staff Papers*, 56(3):574–595.

Forbes KJ (2007): One cost of the Chilean capital controls: increased financial constraints for smaller traded firms. *Journal of International Economics*, 71(2):294–323.

Gallego FA, Hernández FL (2003): Microeconomic effects of capital controls: The Chilean experience during the 1990s. *International Journal of Finance & Economics*, 8(3):225–253.

Garber PM (1998): Derivatives in International Capital Flows. *NBER Working Paper*, no. 6623.

Geroski PA (1991): *Market Dynamics and Entry*. Oxford, Basil Blackwell.

Geroski PA (1995): What do we know about entry? *International Journal of Industrial Organization*, 13(4):421–440.

Goodman JB, Pauly LW (1993): The obsolescence of capital controls? Economic management in an age of global markets. *World Politics*, 46(1):50–82.

Grabel I, Chang H-J (2010): Why Capital Controls Are Not All Bad. *Financial Times*, October 25.

Grier K, Grier R (2007): Only income diverges: A neoclassical anomaly. *Journal of Development Economics*, 81(1):25–45.

Grossman G (1984): International Trade, Foreign Investment, and the Formation of the Entrepreneurial Class. *American Economic Review*, 74(4):605–614.

Hartwell CA (2013): *Institutional Barriers in the Transition to Market: Explaining Performance and Divergence in Transition Economies*. Basingstoke, Palgrave Macmillan.

Hoeting JA, Madigan D, Raftery AE, Volinsky CT (1999): Bayesian model averaging: A tutorial with discussion. *Statistical Science*, 14(4):382–417.

Huang Y (2006): Do Financing Biases Matter for the Chinese Economy? *Cato Journal*, 26(2): 287–306.

Ilmakunnas P, Topi J (1999): Microeconomic and macroeconomic influences on entry and exit of firms. *Review of Industrial Organization*, 15(3):283–301.

Johnson S, Kochhar K, Mitton T, Tamirisa N (2007): Malaysian capital controls: macroeconomics and institutions. In: Edwards S (Ed.): *Capital Controls and Capital Flows in Emerging Economies: Policies, Practices and Consequences.* Chicago, University of Chicago Press, pp. 529–574.

Joyce JP, Noy I (2008): The IMF and the liberalization of capital flows. *Review of International Economics*, 16(3):413–430.

King RG, Levine R (1993): Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3):513–542.

Klapper L, Amit R, Guillén MF (2010): Entrepreneurship and firm formation across countries. In: Lerner J, Schoar A (Eds.): *International Differences in Entrepreneurship.* Chicago, University of Chicago Press, pp. 129–158.

Klapper L, Laeven L, Rajan R (2006): Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, 82(3):591–629.

Klapper L, Love I (2011): The impact of the financial crisis on new firm registration. *Economics Letters*, 113(1):1–4.

Kneller R, MacGowan D (2012): Tax Policy and Firm Entry and Exit Dynamics: Evidence from OECD Countries. *University of Nottingham Discussion Papers in Economics*, no. 12/01.

Kose MA, Prasad ES, Terrones ME (2009): Does financial globalization promote risk sharing? *Journal of Development Economics*, 89(2):258–270.

Luiz J (2002): Small business development, entrepreneurship and expanding the business sector in a developing economy: The case of South Africa. *Journal of Applied Business Research*, 18(2): 53–68.

Masanjala WH, Papageorgiou C (2008): Rough and lonely road to prosperity: a reexamination of the sources of growth in Africa using Bayesian model averaging. *Journal of Applied Econometrics*, 23(4):671–682.

Mata, J. (1996). Small firm births and macroeconomic fluctuations. Review of Industrial Organization, 11(2): 173-182.

Mitchell H, Joseph S (2010): Changes in Malaysia: Capital Controls, Prime Ministers and Political Connections. *Pacific-Basin Finance Journal*, 18(4):460–476.

Neely CJ (1999): An Introduction to Capital Controls. *Federal Reserve Bank of St. Louis Review*, 81:13–30.

Noy I, Vu TB (2007): Capital account liberalization and foreign direct investment. The *North American Journal of Economics and Finance*, 18(2):175–194.

Oxelheim L (2010): Globalization, Transparency and Economic Growth: The Vulnerability of Chinese Firms to Macroeconomic Shocks. *Journal of Asian Economics*, 21(1):66–75.

Pérotin V (2006): Entry, exit, and the business cycle: Are cooperatives different? *Journal of Comparative Economics*, 34(2):295–316.

Prati A, Schindler M, Valenzuela P (2012): Who benefits from capital account liberalization? Evidence from firm-level credit ratings data. *Journal of International Money and Finance*, 31(6): 1649–1673.

Raftery AE (1995): Bayesian Model Selection for Social Research. *Sociological Methodology*, 25: 111–163

Rodrik D (1998): Who Needs Capital Account Convertibility? In: Fischer S (Ed.): Should the IMF Pursue Capital-Account Convertibility? Princeton (NJ), *Princeton Essays in International Finance*, 207, pp. 55–65.

Roodman D (2009): A Note on the Theme of Too Many Instruments. *Oxford Bulletin of Economics and Statistics*, 71(1):135–158.

Schulze GG (2000): *The Political Economy of Capital Controls*. New York, Cambridge University Press.

Stigler M, Shah A, Patnaik I (2010): Understanding the ADR Premium under Market Segmentation. East Asian Bureau of Economic Research, *Finance Working Papers*, no. 15, http://www.eaber.org/intranet/documents/23/2227/NIPFP_Stigler_2010.pdf. Accessed November 13, 2012.

Stiglitz J, Ocampo JA, Spiegel S, Ffrench-Davis R, Nayyar D (2006): *Stability with Growth: Macroeconomics, Liberalization and Development*. Oxford, Oxford University Press.

Way C (2000): Central banks, partisan politics, and macroeconomic outcomes. *Comparative Political Studies*, 33(2):196–224.

Wennekers S, Thurik R (1999): Linking entrepreneurship and economic growth. *Small Business Economics*, 13(1):27–55.

Yamawaki H (1991): The Effects of Business Conditions on Net Entry: Evidence from Japan. In: Geroski PA, Schwalbach J (eds.): *Entry and Market Contestability: An International Comparison*. Oxford, Blackwell, pp. 168–186.