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May 21, 2013¹

ABSTRACT

We examine how institutional changes that lower the *barriers to successful exit* influence the rate of IPO's, the initial capitalization, and the performance of subsequent ventures. Such IPO market reforms are widespread, but their effectiveness is unclear. To do so, we take advantage of a quasi-natural experiment in which the IPO listing requirements in Japan were dramatically reduced. Using a unique database of over 19,000 new firms incorporated after 1982, we find that IPO market reform is a powerful institutional lever that increases the rate of IPOs. But it is also a narrow instrument that influences only few industries and triggers poor average performance in those industries. Overall, we find that IPO market reform is a complex institutional change. We conclude with contributions at the nexus institutional theory and entrepreneurship that indicate where and for whom institutional change will be effective.

¹ The authors express their gratitude to the Miner Foundation and Michael Alfant for their financial support of this research. We also thank the Research Institute of Economic Trade and Industry, Kazuyuki Motohashi, and our colleagues at the Stanford Technology Ventures Program for data and research support. We especially thank Glenn Hoetker, Martin Kenney, Henning Piezunka, Daniel Armanios, Joachim Lyon, Stephen Barley, Woody Powell, Renee Rottner, Jennifer Wooley, Cornelia Storz, and William Miller for the advice and sympathy they offered and helped us immensely. Remaining errors are entirely the fault of the authors.

INTRODUCTION

There is substantial interest across the world in institutional changes that stimulate entrepreneurship. As part of these efforts, in the past decade, several nations have introduced reforms that ease the listing requirements for an IPO in public equity markets. The U.S. and Canada, as well as European nations such as Germany with Frankfurt's New Market, and Asian nations such as Korea and Malaysia, launched public equity markets with lowered IPO listing requirements to encourage IPOs and incentivize the establishment of new technical ventures. For example, the JOBS Act relaxed SEC registration requirements and Sarbanes-Oxley requirements to ease new firms into IPO's. Similarly, Japan created several public equity markets with greatly reduced IPO listing requirements, including allowing even unprofitable firms to "go public". The common logic behind these institutional reforms is that lowered barriers to successful exit such as IPO's encourage individuals to start technical firms, attract investors, and create an economic engine that recycles capital, drives job growth, and creates economic prosperity. But, while appealing, the effect on economic growth of such reforms is less clear. Moreover, factors in other nations including the economic dominance by large business groups, preference for debt financing, strong family ties, and cultural proclivity to avoid risk suggest that such IPO market reforms may have only modest influence (Chacar & Vissa, 2005; Rajagopalan & Zhang, 2008).

Institutional theory provides a lens to examine these policy initiatives. Recent literature connecting entrepreneurship and institutional theory suggests that entrepreneurship is a social construct that is molded by shared beliefs of what is appropriate behavior as well as accepted templates of organizing productive activity (Sine & David, 2010). A central principles of institutional theory is that organizations must conform to the "cultural-cognitive belief systems

and regulatory and normative structures that prevail in a given organizational community” referred to as the institutional environment (Baum & Rao, 2004). By conforming, organizations gain access to elements of the institutional environment such as industry legitimacy, norms, human and technical capital necessary for entrepreneurship (Lounsbury & Glynn, 2001). In this way, new ventures that conform to the institutional environment, then, obtain advantages in gathering resources from external stakeholders such as capital, employees, and customers (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). The institutional environment affects the ventures that form, the types of individuals that found firms, and their subsequent performance, (Geroski, Mata, & Portugal, 2010; Sine & David, 2010). For example, in a study of startup rates in 90 different countries found that the regulatory structure, financial institutions, and normal business practices - among other institutional factors - determine the rate of venture activity (Klapper, Amit, & Guillén, 2010). In another example, a study of biotech startups in San Diego demonstrated that institutional factors that condition IPO rates help to determine the rate of industry startups, the resources available to them, and their subsequent performance (Stuart & Sorenson, 2003a). Even the institutions that affect the death of firms provide resources to new firms as talent, knowledge, and assets are recycled into the founding environment, (Hoetker & Agarwal, 2007).

Recently, scholars of entrepreneurship and institutions have focused increasing attention on changing institutions, (Tolbert, David, & Sine, 2010). The idea is that if the institutional environment conditions new venture formation and outcomes, then changes in that environment must also affect new firms (Dacin, Goodstein, & Scott, 2002). Attention has focused on the changes to the starting environment and how it affects the startup rate and the growth trajectory of new ventures (Sine & David, 2003). One strand relates institutional changes that lower entry

barriers to increased venture formation. These changes ease access to market opportunities, making entrepreneurs more likely to enter. Some of these changes involve lowering friction such as capital and licensing requirements as well as taxes and market entry permissions (Ciccone & Papaloannou, 2010). For example, a cross-country comparison of European countries finds that streamlining procedures for obtaining licenses and permits for starting new firms increases venture formation (Klapper, Laevena, & Rajan, 2006). Similarly, a study of approximately 43,000 MIT alumni from 1930 to 2005 argues that reducing the friction of industry deregulation increases venture formation in the deregulated industries (Hsu, Roberts, & Eesley, 2007). Other institutional changes lower entry barriers by providing entrepreneurs with additional resources that make entry more viable. For instance, when U.S. policy makers simplified the legal steps to start solar power ventures, they also provided financial resources to do so. As expected, the formation of new solar ventures increased (Meek, Pacheco, & York, 2010). Still other changes lower entry barriers by eliminating legal restrictions to opportunities. When the U.S. government passed PURPA, for example, it legalized the sale of power to the electric grid by independent energy firms. This spurred the founding of new firms (Sine, Haveman, & Tolbert, 2005).

A second strand of research examines the influence of changes to the institutional environment that influence growth of new ventures. In particular, lowering barriers to growth makes it more likely the individuals with higher social and human capital will start firms. That is, individuals who have better employment opportunities based on their human and social capital are likely to choose entrepreneurship if lowered growth barriers raise the likelihood of a sufficiently high return (Sørensen & Chang, 2006; Stuart & Sorensen, 2007). For example, a study of alumni of the leading technical university in China, Tsinghua University, examines the influence of lowering growth barriers by the Chinese government (Eesley, 2010). Specifically,

the government removed the legal barriers that blocked entry into state-controlled industries that offered superior returns. This institutional change allowed elite individuals to form firms in the newly opened industries, and they did. Prior to this change, elite individuals usually chose employment in government and state-owned enterprises that were seen as more attractive careers than starting firms. Overall, these two strands indicate that institutional changes to the environment surrounding the start of ventures have important effects for their rates of formation as well as their subsequent performance.

While institutional change of the founding conditions of new ventures has received attention, what has been less explored is the effect of institutions that surround and condition the *end* of firms. While it is logical and well established to expect effects from the starting institutional environment, recent studies suggest that the institutions that condition ending outcomes have a role in new venture formation and performance. For example, making it less onerous to declare corporate bankruptcy are likely to change a founders evaluation of the likely consequence of starting a new firm – making starting a firm more attractive for individuals, particularly those who are risk averse or otherwise have more to lose (Eberhart, Eesley, & Eisenhardt, 2012; Peng, Yamakawa, & Lee, 2009b). In addition, a study of state bankruptcy laws in the U.S. finds that more protection of personal assets during the bankruptcy process encourages individuals with more assets at risk to start firms (Fan & White, 2003). The death of firms can also have effects by altering the entrepreneurial resource and opportunity environment. For instance, a study of the enactment of U.S. prohibition laws finds that this legislation and the related social movement forced the exit of alcoholic beverage producers, and yet simultaneously created opportunities in the soft drink industry. This was because alcoholic beverage producer exits enabled new soft drink firms to “repurpose” some assets of alcoholic beverage producers

(Hiatt, Sine, & Tolbert, 2009). Overall, institutional changes that change the institutional environment attending the death of ventures influences the types of companies that form and their trajectories.

By studying the changes to venture performance after changes in the institutions at the death of other firms, we understand the profound effect that institutions have on individual's willingness to found a firm, but also the effect that this process has on creating superior firms. Yet, we find no literature that looks at the performance of firms founded after changes to institutions that affect the exit of *successful* firms which is a consequential event when many investors and some entrepreneurs' ultimate outcomes are made manifest. We thus add to this stream by examining effects on the performance of new ventures after reform of institutions that condition the initial public offering, the IPO. Studies of the rules that govern successful outcomes have tended to focus on the characteristics of ventures that will increase IPO likelihood. For example, studying internet startups in the US, research found that the reputation of investors, the quality of strategic alliances and the level of initial capital, shorten the time before an IPO is reached and increased its likelihood (Chang, 2004). In a second stream the effect of investors and market timing on the performance of IPO firms has been studied. A study of US biotech firms found that equity from prominent strategic alliance partners or VC's obtain IPO's more rapidly and earn greater valuations at IPO than firms that lack such relationships (Stuart, Hoang, & Hybels, 1999) . This is because such relationships confer positive status to the new venture. These results have been supplemented by studies of IPO's in Japan that found that investor identity has a positive effect on performance (Hamao, Packer, & Ritter, 2000). There is also recent literature examining the U.S. JOBS act and its effect on jobs. However, these results are inconclusive and the empirical analyses focus on job creation and destruction effects (Kenney,

Patton, & Ritter, 2012) Accordingly, while the effects of firm and investor characteristics on IPO likelihood is studied, we find no literature that examines changes in IPO rules that ease obtaining an IPO and their effects on new firm performance. Overall, despite the widespread adoption of IPO market reform, it is unclear how this institutional change influences firm performance and ultimately economic prosperity. There is a gap in our knowledge of the effect of changes to institutions that lower *barriers to successful exit* affect the performance of new firms. We address this gap.

We ask: *How do changes in the institutional environment that lower barriers to successful exit influence the performance of subsequent ventures?* Our setting is Japan. We take advantage of a quasi-natural experiment in which the IPO listing requirements in Japan were dramatically reduced in 2000. Using data on firms founded before and after the reform, we examine how this reform influenced IPOs, capitalization, types of founders, and performance of subsequently founded firms. Japan is an appropriate setting for our study. Like many countries, the Japanese favor debt financing, large and established business groups, and low risk taking within a collectivist ideology (Franks, Mayer, & Miyajima, 2009). Thus, Japan is a challenging context for individualistic Western-style IPO market reform to take hold. Yet also like many countries, many Japanese believe that entrepreneurship, including IPO market reform, plays a key role in the economic prosperity of the West (Imai & Kawagoe, 2000).

We contribute to the nexus institutional theory and entrepreneurship. Prior research examines entry, growth, and exit barriers and finds implications for the rate of new firm formation (Sine et al., 2005) and the mix entrepreneurs who launch firms (Eesley, 2010; Fan & White, 2003). But it leaves unexamined the question of barriers to successful exits like IPOs and their efficacy. Using institutional arguments and exploiting a quasi-natural experiment in Japan,

we find that barriers to successful exit like IPOs have complex outcomes. On the one hand, IPO market reform is a powerful reform that increases IPOs, and enhances the capitalization and performance of new firms. On the other hand, IPO market reform is also a blunt reform that has no effect in many industries, damages performance where it does have an effect, and helps only particular entrepreneurs.

We build on the stream of institutional change literature in three ways. First, we add to the recent idea that new ventures are profoundly affected by the events and institutions associated with the *ending* of firms, notwithstanding the founding environment. This is because making IPO's easier focused investment narrowly and affected performance negatively. Second, we show that changes in beliefs, as Japanese actors compared their relative economic fortunes to the U.S. during the 1990's, generated institutional change. Business leaders in Japan began to compare themselves and their formal institutions to the U.S. after seeing the boom going on there in the technology sector. Finally, our findings suggest that adopted institutions change behavior gradually as they become accepted and formalized in a different place. We find that investment actions based on new beliefs are strongest where there are prominent international social networks. The reason is that novel beliefs are adopted first where there are the most frequent business relationships between the adopting and source countries. Therefore, we add to the literature a context-dependent view of institutional diffusion. Overall, we contribute an understanding of the effects how institutional change, and how this institutional change tends to alter the performance of new firms.

BACKGROUND AND HYPOTHESES

IPO Equity Market Reform in Japan

The institutional environment of Japan was changed by an economic contraction that began after an asset bubble collapsed in 1990. This launched a prolonged era of declining Japanese asset values and a decade of stagnant business activity. Scholarly and popular assessments of Japan's business environment increasingly led to broad criticism that the Japanese institutional architecture for business was no longer relevant in a globalized setting (Eberhart & Hoetker, 2010; Storz, 2008). The Japanese business environment was unfriendly to entrepreneurial activity, beset by structural problems, and not keeping pace with emerging rivals (Anchordogy, 1997; Vogel, 2006). As Japanese policy makers and business leaders searched for remedies, many were struck by the entrepreneurial environment of the U.S., especially Silicon Valley, which was enjoying unprecedented prosperity. In particular, vibrant IPO equity markets in the U.S. were an exemplar for many Japanese observers. These markets were seen as exceptional with regard to the creation of wealth, especially in comparison with Japan's decade of post-bubble stagnation (Kneller, 2007; Schaede, 2008). In contrast, the paucity of IPO's in Japan prior to the reform that we study was explained in part by stringent high requirements for IPO in Japan (Liang & Huang, 2012; Rowen & Toyoda, 2002). Thus, interest arose in adoption of IPO market reform within Japan.

To understand this reform better, we briefly describe the evolution of Japanese business financing over the past century. For the first half of the 20th century, Japanese firms often used equity (Franks et al., 2009). But this financial model changed during the second half of the century with the rise of Japan as an economic power, and the success of the keiretsu business groups. Japanese firms favored debt financing through the banking system, and this became the

norm (Franks et al., 2009). Further, new firms had particular difficulty raising money. The public equity markets with their onerous IPO requirements were unwelcoming and even inaccessible to them. Private equity such as venture capital was tied to the large banks (Kenney, Han, & Tanaka, 2002) and difficult to obtain. The result was that the capital needs of most Japanese firms relied substantially on debt, and new firms had difficulty raising capital at all.

Given the Japanese stagnation and the success of public equity markets in the West, Japanese actors began to view the U.S. IPO system as more appropriate than the high barriers that existed on Japanese exchanges to obtain IPO's. Acting on these new beliefs, some Japanese began to act. Specifically, two new equity markets with lowered IPO listing requirements were created in 2000. An immediate aim was to take advantage of financial opportunities that might be similar to those in the ongoing IPO boom in the U.S., which had been very profitable for many (Harris, 2006). Moreover, Japanese public policy makers encouraged these efforts as a way to stimulate entrepreneurial activity.

Softbank (a major Japanese investor in the U.S.) and the U.S. National Association of Securities Dealers (NASD) established the first of these equity markets, NASDAQ Japan, in 1999. Trading began in June 2000. In contrast to the existing markets, the IPO listing requirements of NASDAQ Japan lowered the traditional minimum firm age requirement, and imposed neither net asset nor profitability requirements for candidate firms. Subsequently, this market became associated with one of the two major Japanese stock exchanges, the Osaka Stock Exchange. Similarly, the second major exchange, the Tokyo Stock Exchange, created a new public equity market, MOTHERS, with a similar drastic lowering of IPO listing requirements. Full trading began in early 2000 (Mizuno, 2006).

These two new equity markets sought to accommodate IPO activity, especially among young and growing ventures, by providing ready access to capital at early stages of their development – even before reaching scale and profitability. Thus, very small and new firms that were losing money could now “go public” in Japan. Table 1 compares the listing requirements of these new public equity markets with the benchmark first section of the Tokyo Stock Exchange.

Hypotheses: Implications of IPO Equity Market Reform

In our first hypothesis, we argue that the IPO market reform described above subsequently increased IPOs. That is, lowered barriers to successful exit did in fact increase this form of exit. This is likely to occur because many entrepreneurs and their investors seek IPOs, and so lowered barriers are likely to increase the number of IPOs.

To begin, many entrepreneurs and their investors regard an IPO exit as highly desirable and seek it for several reasons. First, an IPO provides investors and entrepreneurs with an opportunity to realize a tangible return on their investment. Thus, IPO offers liquidity for both investors and entrepreneurs such that they can diversify their risk and reinvest their capital elsewhere. In other words, they can “cash out”. Also, IPOs usually are more lucrative than a successful exit via acquisition (Graebner & Eisenhardt, 2004). Second, from the firm perspective, an IPO typically provides much needed capital for further investment, and so provides a basis for growth (Black & Gilson, 1998). Capital raised in the public equity markets is also often priced attractively relative to other financing. Third, an IPO is a signaling event in a firm’s history that conveys success and legitimacy to stakeholders such as customers, current and potential employees, and investors (Gompers & Lerner, 2010). It may even convey “rock star” status to the venture’s entrepreneurs and investors (Gompers, 1996). Overall, many entrepreneurs and investors seek IPOs.

Given that IPOs are often a desirable exit, lowering the barriers to IPOs through equity market reform is likely to trigger more IPOs. That is, by permitting IPO by firms with lower performance and other requirements, the population of eligible firms expands which leads to more firms going “IPO”. For example, a study of IPO requirements in different sections of the Toronto stock exchange confirms increased IPO activity occurs where there are lower listing requirements (Carpentier & Suret, 2009). Overall, since entrepreneurs and investors often consider IPO’s to be highly desirable exits, lowered IPO’s barriers are likely to motivate them to seek IPOs and thus, increase overall IPO activity. We expect greater IPO activity after the reform.

Hypothesis 1a: Establishment of lowered IPO requirements increases the likelihood that new firms obtain an IPO.

We also expect that the Japanese context will particularly influence the industries in which expected increases in IPO’s will occur. As argued above, the Japanese adopted IPO market reform largely because of their own economic challenges and observation of the success of such markets, particularly in the U.S. Lower IPO requirements in U.S. equity markets seemed to be a “winner” for everyone – i.e., exchange owners, entrepreneurs, investors, and the entire economy. Not surprisingly, the Japanese borrowed features from the U.S. template for IPO requirements when they established their own new equity markets (Deakin & Whittaker, 2009; Vogel, 2006). Indeed, Softbank (a frequent Japanese investor in the U.S. technology sector with venture capital offices in the U.S.) and NASDAQ (a U.S. stock exchange) combined to launch the first reformed market in 2000, reinforcing the link between these markets and the U.S. Moreover, the Japanese often equated IPOs with the technology sector because that was how the U.S. IPO equity markets were perceived (Anchordogy, 1997; Lynn & Kishida, 2004). So, although many companies outside of the technology industry “go public”, the most salient U.S.

IPO names like eBay, Cisco, Google, and Yahoo were in the technology sector. Thus, using the logic of mimetic institutional diffusion (DiMaggio & Powell, 1983; Hayagreeva†Rao, Philippe†Monin, & Rodolphe†Durand, 2003; Strang & Meyer, 1993), we argue that Japanese entrepreneurs and investors equated IPOs with the technology sector since that was the association in the system they came to take as right and proper. This taken-for-granted understanding is particularly ironic since some of the strengths of the Japanese economy such as the manufacturing sector and the domestic services and retail sectors were then largely ignored as attractive IPO opportunities.

Overall, we argue that the cognitive association of IPOs with the technology sector, and disconnect of equity financing and entrepreneurship from the usual Japanese business practices suggest that IPO market reform will have its greatest effects in the technology sector.

Hypothesis 1b: Establishment of lowered IPO requirements increases the likelihood that new firms in the technology industry obtain an IPO.

While the first hypotheses are essentially a “manipulation checks” for the focal reform, the next hypothesis focuses on a key outcome of that reform. We argue that firms founded after the reform will have higher initial capitalization than firms founded before it. Two mechanisms underlie this argument.

First, since IPO market reform increases the likelihood of achieving an IPO and doing so quickly, such reform is likely to attract investors and motivate them to invest more capital in new firms. Indeed, the opportunity costs of not investing increase as greater and earlier returns become more likely. This reinforces the willingness of investors fund new firms. New investors are likely to be attracted and current investors are likely to invest again when they expect a reasonable chance of liquidity (Black & Gilson, 1998). A rich body of research supports this

argument. For example, a study of U.S. venture capital funds shows that increasing IPO activity increases both the amount of money that VCs raise and the amount of money that they invest in new firms. Increased demand by investors for investments that tap into potential IPOs and matching demand for those funds by individuals attracted to founding firms by the lure of IPO are key drivers of these results (Gompers & Lerner, 1999). Similarly, using data from 21 countries, another study finds that lowered government regulation of IPOs is related to increasing IPO activity and triggers more VC investment (Jeng & Wells, 2000).

Second, more and more rapid IPOs are likely to increase the initial capitalization of subsequent ventures by recycling investment funds that are made liquid by prior IPOs. In other words, an IPO frees investment capital to invest again. When more IPOs occur and happen more quickly, investment capital becomes available and recycles more quickly. For example, a study in the U.S. biotech industry finds that more IPOs in local regions generate more subsequent biotech ventures in those regions, an outcome consistent with investment recycling in the VC industry where investment is often local (Stuart & Sorenson, 2003b). Overall, lowered IPO listing requirements are likely to increase the capitalization of ventures founded after reform:

Hypothesis 2a: The establishment of new lowered IPO requirements increases the starting capital investment in firms that are newly incorporated after reforms.

We hypothesized above that Japanese entrepreneurs and investors viewed IPOs as a feature of technology industry success and the reform of the IPO list requirements were motivated to adopt what were perceived as more successful practices to encourage technical IPO's. Thus, it is likely that the investments encouraged by more IPO activity, as argued above, would be focused in technology firms. First, technology firms are taken-for-granted to be the intended purpose of IPO reform because the intent of these reforms is to provide financial incentives to entrepreneurs to that might ignite innovations (Wonglimpiyarat, 2009). Second, technical firms reach IPO faster

than other firms, increasing opportunity costs and reducing risk compared to other industries, (Gompers & Lerner, 2010; Kukies, 2002). Finally, investors tend to mimic other investors behavior because of concern about the appearance of appropriate investing among peers, (Iihara, Kato, & Tokunaga, 2001; Scharfstein & Stein, 1990). Overall, increased investment in the wake of IPO reform will likely be focused in technology firms.

Hypothesis 2b: The establishment of new lowered IPO requirements increases the starting capital investment in technology firms that are newly incorporated after reforms.

As noted earlier, several facets of the Japanese institutional environment are likely to work against IPOs and equity financing more broadly. Japanese firms favor debt financing (Franks et al., 2009). Thus, Japanese executives are less conditioned to consider equity financing. This equity mindset is reinforced by the fact that many venture capital firms are extensions of banks (Kenney et al., 2002). Japanese public policy also traditionally favors large firms in addition to debt financing through major banks (Aoki & Patrick, 1994; Hoshi & Kashyap, 2001). Although declining in importance, the lifetime employment that characterizes many Japanese firms provides attractive career alternatives that diminish interest in entrepreneurship. Thus, the Japanese institutional environment differs from the favorable environment in Silicon Valley regarding entrepreneurship, and its related career risks.

If, though, a change in the taken-for-granted environment occurred, it likely manifested first where international trade is most active and foreign owned firms are most likely to be found. Adoption of organizational practices and cognitive meanings diffuses slowly, particularly if it is a mimetic adoption process like then one we propose for IPO reform, (Guler, Guillen, & Macpherson, 2002; Tolbert & Zucker, 1983). The diffusion is constrained both by existing local institutional framework, and enabled by the opportunity to act in new adopted frameworks such

as relaxed IPO requirements,(Casper, 2000). Thus, IPO reform as an adopted reform from the U.S. (Vogel, 2006), we expect the associated beliefs and knowledge of its anticipated effects to start in Tokyo since that is where most international trade and technical business relationships are centered. Thus, to supplement our argument that the initial hypothesized effect of IPO reform is increased investment in new venture; the effect will be particularly strong in Tokyo.

H2c: The establishment of new lowered IPO requirements increases the starting capital investment in firms starting in Tokyo that are newly incorporated after reforms.

The prior hypotheses argue that the IPO reform will increase the number of IPOs and the capitalization of new firms founded after the reform. The next hypothesis focuses on how the reform influences firm performance. Specifically, we argue that firms founded after the reform are likely to be higher performing than those founded before.

One reason is that more resources are likely to increase firm performance. As we argued in H2a,b,c when IPOs are more likely, they attract more investment that is likely to give new firms more financial resources. More financial resources are beneficial for obtaining other necessary resources such as human capital and intellectual property that are essential for developing new products (Brush, Greene, Hart, & Haller, 2001; Hallen, 2008; Stuart & Sorenson, 2003a). Thus, new firms need sufficient financial resources to hire employees, fund expansion and innovation, and even just to survive. Also, more resources enable ventures to withstand unexpected shocks and setbacks (Barney, Wright, & Ketchen, 2001). Thus, more financial resources are likely to improve the performance of new firms (Ahuja & Katila, 2004; Barney, 1991; Eisenhardt & Schoonhoven, 1990). Substantial evidence supports this argument. For example, in a study of 91 U.S. restaurant chains, greater initial resources are associated with more aggressive growth strategies and better performance (Combs & Ketchen, 1999). In a study

of 210 British firms, more financial resources are associated with higher performance across diverse industries. In particular, firms with greater access to financial resources were better able to weather unforeseen circumstances and take advantage of unexpected opportunities (Greenley & Oktemgil, 1998). A number of studies also find that ventures with more alliance relationships are also higher performing (Baum & Bird, 2010; Baum, Calabrese, & Silverman, 2000; Ozcan & Eisenhardt, 2009). Here the argument is that, when ventures form alliances, they gain access to the financial resources and complementary assets of their partners. These increased resources then improve their performance.

More resources are also linked to better performance because they enable entrepreneurs to pursue “higher risk, higher return” opportunities that can generate superior, albeit highly variable, performance (Nanda & Rhodes-Kropf, 2011). This argument is supported in a study of the effects of additional resources on risk taking and performance in 385 U.S. firms. Using the variance of a firm’s forecasted performance as the measure of risk, the findings indicate that more resources led to greater risk taking and performance (Greve, 2012; Wiseman & Bromiley, 1996). Similarly, an examination of Japanese shipbuilding firms finds that firms with more resources are more innovative and subsequently higher performing as measured by sales growth (Greve, 2003). Finally, while it is possible to have too many resources such that performance is dampened (Katila & Shane, 2005), this seems unlikely in the Japanese context. The Japanese venture financing environment is less munificent than the United States venture environment such that excess resources seem unlikely to be problematic (Hoshi & Kashyap, 1999; Milhaupt, 1996). Thus, we argue that IPO market reform is likely to increase the performance of firms founded after the reform.

Hypothesis 3a: The establishment of new lowered IPO requirements is associated with increased performance for new firms incorporated after reforms

In H2b, we argued that technology firms in particular will acquire more resources because the focusing of taken-for-granted beliefs that the reform is most salient in the technology industry. The reforms were adopted to encourage the creation of new technology firms. Should additional resources be particularly provided to technology firms, for the reasons above we expect that technology firms' performance will be particularly augmented.

Hypothesis 3b: The establishment of new lowered IPO requirements is associated with increased performance for new technology firms incorporated after reforms,

As, we argued above, additional investment is likely focused in Tokyo where the influence of both government and foreign trade carry the expectation that investment in new firms is the proper action when IPO reforms are implemented. Thus, the additional resources should augment the performance of new firms particularly in Tokyo.

Hypothesis 3c: The establishment of new lowered IPO requirements is associated with increased performance for new firms incorporated in Tokyo after reforms,

METHODS

Our sample consists of firms in the COSMOS 3 database from Teikoku Databank, Ltd. (TDB). TDB is a commercial credit rating firm in Tokyo (founded 1890), and one of the two leading firms in Japan providing credit ratings to corporate clients. Since Japanese firms rely on this database for evaluating supplier and customer credit worthiness, it is particularly comprehensive and accurate in its capture of firms with any commercial activity. In addition, this database includes variables that are especially relevant for studying the founding, and performance of new firms such as their capitalization. Consistent with the quality of these data,

Teikoku Databank data are used by numerous Japanese scholars in research (Miyamoto & Rexha, 2001; Schaede, 2008; Singleton & Globerman, 2002; Suzuki, Kim, & Bae, 2002; Takhashi & Nakamura, 2009), and public policy evaluation (ACCJ, 2010).

The 2012 edition of the COSMOS 3 Database consists of Japanese firms incorporated through 2011. These firms include the common legal forms of formal business organization in Japan excluding sole proprietorships and including partnerships, limited liability companies, special corporations, and stock issuing corporations². Each record in the database consists of initial firm measures including capitalization, CEO characteristics, incorporation date, legal form, and industry as well as current measures of the focal firm including employees and IPO status. The database also includes financial performance data for the most recent three fiscal years – e.g., revenue and profit. We begin our observations in 1990 because that year marks the beginning of Japan’s post-asset bubble environment. We end the observation period in 2007 just prior to the 2008 financial crisis. Our sample consists of 19,168 firms.

Dependent Variables

We examine H1 and using event history analysis in which the dependent variable event is the occurrence of an *IPO*. We code this event as 1 in the year that the firm experiences an IPO, and 0 if there is no IPO. We obtain these data from the TDB database.

For H2a,b,c, we measure the dependent variable, initial capitalization, as the log value of the opening capital account at firm founding in thousands of yen, *initial_capital (log)*, in constant 2009 yen. As is common in the entrepreneurship literature, we designate founding as date of incorporation, and obtain these data from the TDB database.

² These firms include stock issuing firms (*kabushiki kaisha* 株式会社), special non-stock issuing corporations (*tokurei yugen kaisha* 特例有限会社), limited partnerships (*goshi kaisha* 合資会社 and *godo kaisha* 合同会社), and general partnerships, (*gomei kaisha* 合名会社), and exclude firms with no commercial activity such as sole-proprietor hobby firms.

For H3a,b,c, we measure the dependent variable, firm performance, as the compound annual sales growth rate, *growth*, of the focal firm. Sales growth is an appropriate measure of venture performance because sales growth is a salient measure of firm performance across all industries since firms ultimately require revenue to survive regardless of industry. Sales growth is also an antecedent financial outcome to other common and important financial measures such as profitability (Davidsson, Achtenhagen, & Naldi, 2007). Sales growth is also commonly used in prior studies of venture performance (Baum & Bird, 2010; Chandler & Hanks, 1993; Eisenhardt & Schoonhoven, 1990; Gersick, 1994; Hall, 1987; Hmieleski & Baron, 2009). Consistent with prior research (e.g., Baum & Bird 2010), we compute sales growth as compound annual growth rate that takes the *n*th root of the total percentage growth rate where *n* is the number of years in the period being considered using a starting value of “1”. We compute this measure from founding to 2007. As a robustness check, we also use a second performance measure, employment growth, with consistent results.

Independent Variables

We hypothesize the effects of the Japanese IPO market reform in all of our hypotheses. We measure the occurrence of that reform as the year, 2000, when, as described earlier, firms were first able to list on Japanese public equity markets with dramatically lowered IPO requirements such that even young, small, and unprofitable firms could “go public”. Thus, we measure when the focal venture began relative to this reform with a binary variable, *reform*, that is 1 if the focal firm is founded during or after 2000, and 0 otherwise.

In H2c, and H3c, we hypothesize about the effect of firm location. We define two locations, the Tokyo and Osaka metropolitan regions, which are the two largest urban regions in Japan and the home of the reformed IPO markets. Tokyo is the focus of international trade with over 74% of foreign owned firms in our database located there versus 3.1% in Osaka. We

operationalize the locations with binary variables that are 1 if the location of a firm's home office has a postal address code in the respective metropolitan region defined by Japan Post. This includes the cities proper and associated suburbs.

In all hypotheses, we test interaction effects of IPO market reform with the initial industry of the new ventures. TDB assigns firms to their initial industries using the well-known and widely used SIC codes (Robb & Reedy, 2009) at the 4-digit level. But since TDB sometimes assigns a firm to a 4-digit SIC code when their activities are more diverse, we conservatively use the 2-digit industry level. Following prior research, we then group these 2-digit industries into logical bins (Folta & O'Brien, 2003). That is, we classify each firm into one of seven industry categories: *Primary*, *Manufacturing*, *Wholesale/Retail*, *Service*, *Finance*, *Construction*, and *Technology*. We test our hypotheses for the technology industry, but also include these other industries to enhance robustness and insight.

Control Variables

Foreign Ownership: We also control initial foreign ownership for several reasons. In the case of IPOs, empirical studies indicate that foreign investors have different expectations for return and speed of return than domestic Japanese investors (Deakin & Whittaker, 2009). Thus, they are likely to press for IPO sooner. It is also likely that foreign investors are not subject to the same social expectations and constraints as domestic investors. Japanese studies show that foreign investors select investments with different (shorter) time horizons and expect higher returns (Ahmadjian & Robbins, 2005; Asaba, 2005). Thus, foreign ownership is likely to increase the probability of IPO. Foreign ownership is also likely to increase the likelihood that firms have higher initial capitalization (H2a,b,c). Foreign ownership suggests that entrepreneurs with broad access to capital beyond domestic investors are likely to be able to raise more capital.

Finally, firms with foreign ownership are more likely to have higher financial performance, especially sales growth (H3a,b,c). The underlying argument is, as above, that such investors often have more aggressive goals, and so will apply greater pressure on the new firm to grow quickly. In addition, foreign investors may open opportunities in their domestic markets that favor the new firm, and may serve as a signal of the global presence of the firm (Kimura & Kiyota, 2004). These effects make high performance more likely. We measure, *foreign ownership*, by a “1” if the focal firm is initially 25% or more owned by foreign organizations or individuals. We obtain these data from the TDB database.

Founder’s Gender and Over 40 Founder: We also control for several initial founder characteristics because they can imprint the operating blueprint of the firm (Beckman & Burton, 2008; Boeker, 1989), and determine its initial advantages (or disadvantages) that often compound over time (Eisenhardt & Schoonhoven, 1990). Specifically, we control for whether the firm has an over 40 founder because older founders are likely to form new firms that are more successful and therefore more likely to IPO (H1), as well as have high financial performance including high sales growth (H3a,b,c). In addition, older founders are also likely to be more able to attract investors than other founders, and so accumulate high initial capitalization for their firms (H2a,b,c). We measure *Over 40 Founders* by using CEO birth date. We obtain these data from the TDB database. We also control for the gender of the founder. females in Japan are less attached to the business environment than males because of long-standing institutional structures that made their entry difficult (Futagami & Helms, 2009). Recently, studies have found an increasing entry of females into new ventures (Griffy-Brown, 2010). Moreover, empirical studies of U.S. venture capital investing suggest that the gender of the founder affects the amount invested in a new venture and its valuation, (Hart, Greene, Brush, &

Saparito, 2001). Since our arguments examine the interaction of new beliefs with an incumbent environment, female founders are likely to affect investment. If a founding CEO is a male we code the variable, *Founder's Gender*, as 1 and otherwise 0.

Fixed Effects: We control for *industry fixed effects*. Industry influences the likelihood of IPO (H1, H4a) because firms in some industries may need the additional resources that IPO provides, and some industries may be more attractive to public investors. Industry also is likely to influence factors such as the amount of capital needed to start a firm and the ability of firms to raise capital (H2, H4b) and the rate of firm growth (H3, H4c). Thus, we capture industry fixed effects, *industry*, and categorize the industries as described above. We control for *annual fixed effects* using annual binary variables following the methodology of estimating multiple control groups with sufficiently large sample sizes (Bertrand, Duflo, & Mullainathan, 2004). This enables us to control for differences in the macro-economic and business environments that might influence the likelihood of IPO, initial capitalization and performance.

Other Effects: For H1, and H3a,b,c, we control for firm size as measured by the log of employee size, *Employees (log)*. We expect that firms with more employees are more likely to IPO and to have higher growth. We also explicitly control for the macroeconomic environment because these conditions are likely to influence IPO exit, initial capitalization, and growth. We do so using the variable, *GDP Growth*, which is the cumulative average growth rate of GDP for the three years centered on a firm's incorporation – in constant 2009 yen using data from the Statistics Japan database (Statistics, 2011). Finally, for H3a,b,c, we control for firm age. In addition, since prior research indicates that the growth of firms tends to slow over time (Evans, 1987), we control for the age of the firm, *firm age*, and its square, *firm age*², to capture diminishing quadratic growth compounded over time for our performance hypotheses (Angelini

& Generale, 2008).

Model Specification and Econometric Issues

To analyze H1a,b, we estimate the effects of IPO market reform on a firm's likelihood to complete an IPO before and after the reform. Because we are examining the effects of reform across two time periods, we adopt a piecewise Cox proportional hazards model that estimates the likelihood of an event before and after a chosen date so that we can compare likelihoods (Sørensen, 1999). In our case, our event of interest is an IPO and the reform date is 2000 as described earlier.

One advantage of this model is that it does not impose strong parametric assumptions with regard to the hazard rate. This allows variation between selected periods unlike standard proportional hazard models, and so allows us to estimate the effects of the coefficient of reform on our dependent variables for the time periods before and after IPO market reform (Blossfeld & Rohwer, 2002; Sørensen, 1999). Since our study includes firms incorporated in 1990 and thereafter, and our focal reform occurs in 2000, we define two time segments: 1990-1999 and 2000-2007. We test for IPO likelihood - operationalized with *IPO*. We report exponential coefficients (hazard ratios), and compare them for a statistical difference with two sided unpaired t-tests.

We use difference-in-differences analysis to examine H2a,b,c, H3a,b,c,. In this method, we examine the effects of a treatment (in our case, IPO market reform) by comparing the outcomes of treatment groups after treatment with the outcomes of treatment groups before the treatment, and of a control group. Outcomes are observed for several time periods. This model structure can apply, as in our case, to repeated cross sections (Wooldridge, 2007). We use primary industries (e.g., farming, coal mining, and forestry) as our control group because firms

in these industries are unlikely to be affected by IPO market reform, and yet still are affected by the broader environment. These firms are likely to exit by hereditary bequest but not IPOs, and otherwise exist in and respond to the broader environment. Thus, we expect that the environmental effects of general social and macroeconomic trends on these firms will be similar to those of firms in other industries. But unlike other industries, firms in the primary industries will be less affected by IPO market reform since executives in these industries follow traditional, often hereditary career paths – e.g., starting a dairy farm – and do not typically seek to IPO. This approach allows us to determine whether the outcomes of the treatment group change differently from those of the control group because difference-in-difference estimation treats unmeasured factors as affecting the treatment and control groups equally (Campbell, 1969; Forman, Ghose, & Goldfarb, 2009). Since our analytic window has multiple time periods and industries, we follow the difference-in-differences method as described in prior research (Bertrand et al., 2004; Hansen, 2007). Following this method, our model includes a full set of annual fixed effects, a full set of industry fixed effects, an institutional change – *reform* – that marks the date of our focal IPO market reform, controls, plus interactions between the focal reform with industry fixed effects and elite founders. Of analytic interest are the coefficients on the interaction variables that allow us to discern the effects of the focal reform on industry-level capitalization, industry-level performance, and performance of firms with elite founders. We estimate the effects of IPO market reform on initial capitalization (H2a,b,c) and on performance (H3,a,b,c). The reform “treatment” occurs in 2000. Because our data span distinct time periods, we mitigate the effects of heterogeneous distribution of independent variables by estimating these models with a generalized linear model using robust error estimation.

RESULTS

We ask how equity market reform affects IPO's, capitalization, and venture performance. Table 2a and 2b report summary statistics. Table 3 reports correlations. Univariate data is consistent with our hypotheses H1a that IPO's are more frequent after reforms with 2.45% of newly incorporated firms obtaining IPO after reform compared to 2.08% before reform. This is all the more notable because firms founded before reform have up to ten years more time to gain IPO than those founded after. Turning to the characteristic of companies that obtained IPO's we find that most industries obtain IPO's in proportion to their proportion of total startups. As expected, technology firms obtain IPO's at more than twice their proportion of total startups indicating the technological firms association with IPO's consistent with our H1b. It is also notable that foreign owners own 25% or more of only 0.3% of newly incorporated firms before reform but that jumps to 2.03% after reforms and 2.45% for IPO firms incorporated after reform. Moreover, Tokyo is the home location of 20.01% of firms incorporated before reform but has 74.40% of IPO firms incorporated after reforms suggesting that the idea that IPO's are spatially associated with Tokyo, H2c. In addition, since the IPO proportion of Osaka firms before and after reform is unchanged, 8.22% versus 8.06% respectively, is suggestive of the centrality of Tokyo in IPO likelihood and associated behaviors. Overall, the univariate data suggests that IPO's did become more likely after reform, particularly among technology venture, and are associated with Tokyo.

 Insert Tables 2a, 2b and 3 about here

Turning our attention to multi-variate analyses, in H1a we argue that the IPO listing reform increases the likelihood of IPO. Table 4 reports the results of our Cox piecewise analysis. Model 1 is the controls result. As expected, elite founders, GDP growth, firm age, and number of

employees increases the likelihood of IPOs (model 1, $p < 0.001$). We support H1a by finding that IPO activity is significantly greater after the reform than before by comparing the coefficients of the 1990 through 1999 period to the 2000 to 2007 period for the *reform* variable. Moreover, strong support is found in the positive and significant difference in the coefficients of the location variables, *Tokyo* and *Osaka* (model 1, $p < 0.001$). We find a significant difference in these variables, using t-tests ($p < 0.001$), between pre-reform and post-reform time periods. In H1b, we argue that IPO market reform will particularly increase IPO likelihood in the technology industry. In Table 4, we examine the difference between IPO likelihood of types of firms before and after *reform* by comparing the coefficients of the industry variables across the two analysis periods. We find that only the technology coefficient differences in the two time periods are significant ($p < 0.05$). We thus support H1b, confirming that the IPO market reform significantly increased IPOs particularly in the technology industry sector.

In H2a we argue that IPO equity market reform is likely to increase the initial capitalization of new firms founded after the reform. Table 5 reports the results of our difference-in-differences analysis. Model 1 reports controls results only to indicate that ventures with 25% foreign ownership increase initial capitalization by gathering over Y4.6 million more investment (model 1, $p < 0.001$) compared to other firms. Notably, the reform variable is not significant implying that overall, firms founded after reforms do not have higher initial capitalization. Model 2 adds the coefficient the interaction between reform and our control (*Primary Industry X Reform*). As we expect, this coefficient is negative and significant supporting our differences in difference control assumptions. Model 4 adds other industry interactions to examine if IPO market reform will particularly affect initial capitalization in the technology industry sector, H2b. The positive and significant coefficient ($p < 0.001$) on the *technology X reform* interaction

supports this hypothesis implying that technology firms attracted capital that other firms did not. Notably, all other industry-reform interactions are not significant and negative. The initial capitalization of the new firms in the *technology* industry increased after the reform by Y1.26 million or 6% of the mean level before reform ($p < 0.001$). The implication is that the *technology* industry attracted more investment after the IPO market reform while investment in other industries remained stagnant or dropped, perhaps to support investment in *technology* firms.

Turning to location effects, H2c, model 3 adds location interaction reforms for the Tokyo and Osaka locations. There is a significant and positive interaction of reform with being located in Tokyo ($p < 0.001$), but no significant effect associated with locating in Osaka. As the effect is manifest in Tokyo and not Osaka, it suggests strong support for our H2c. A firm in Tokyo gathers over Y265 million yen more initial capital than other firms after reform. The implication is that investor behavior in Osaka is less affected by reform than in Tokyo, which is consistent with the idea of the adoption of beliefs where international social networks are prevalent.

Insert Table 4 and 5 about here

In H3a, we argue that firms founded after the IPO market reform are likely to have higher performance than those founded before. We present the results in Table 6. In model 1, we examine the controls. As expected, firms with foreign ownership and more employees are better performing than other firms, but the effect diminishes with the age of the firm and there is an unexpected significant negative performance effect overall with reform. Our interest is the interaction effects of particular industries with reform. In model 2, then, we add the industry interaction effects of the reform, and find that they are significant and negative ($p < 0.001$) in technology and service industries, and insignificant for all others. Thus, our hypotheses H3a, and H3b are not supported. We find instead that firms founded after the IPO market reform are not

performing better.

Firms located in Tokyo do perform better after reform. Model 3 of table 6 adds location variable interactions, while Osaka located firms have no performance effects after reform, Tokyo firms growing 5.9% faster than non-Tokyo located firms after reform. We examine this interaction more closely by examining the interaction of Tokyo and reform with entering the technology industry, model 5, and find a negative and significant coefficient on the *Tokyo X Technology X Reform* triple interaction variable suggesting that as investment capital increased particularly into technology stock and Tokyo-based firms after reform, the overall performance of the sector is negative. Again, this does not support our hypothesis. Overall, our surprising result is that not only does overall new venture performance decline after IPO reform, it particularly declines in the industries and location where our previous findings show that increased investment following reform was focused (H2b,c).

 Insert Table 6 about here

Robustness checks

In results available from the authors, we also conducted a number of robustness checks and their results reinforce our findings. First, we examine whether broad trends might explain our results. We ran placebo regressions where we choose an artificial reform year for three years on either side of 2000 to determine whether the results are due to the actual reform or due to a general trend. These coefficients should not be significant, and indeed they are not. Second, we also examine an alternative specification of performance, employee growth. We found similar results to what report above.

Right censoring can affect our results, however the effect is conservative. New ventures that obtain IPO's in Japan typically are eight to ten years old upon IPO (Eberhart, 2012). This

suggests that firms founded more recently in our sample are right censored since insufficient time is passed before the opportunity to IPO is manifest. However, the effect is conservative. Right censoring biases the likelihood of IPO after reform lower in our proportional hazards model. Thus, the detection of the hypothesized effect (H1a,b) is made more difficult. The bias is also likely to be smaller than this suggests. If reform causes shorter times to IPO, as we theorize, then this bias is mitigated. Overall, then, we do not expect right censoring of IPO's to alter our findings.

We also ran analyses controlling for other trends in GDP growth and macroeconomic factors, and found similar results. We tested for robustness to alternative control groups including bars, restaurants, spas and other industries that would have probably been unaffected by the reform. These regressions provide similar results, reinforcing our findings. We also ran analyses to control for bankruptcy reform, and find that our results hold. Overall, our findings are robust to other sensitivity checks and alternative specifications.

DISCUSSION AND CONCLUSION

Our central insight is that IPO market reform is a powerful institutional lever that affects new ventures because of anticipated conditions at the end of a firm's entrepreneurial phase. Specifically, we find that lowering the barriers to successful exit by lowering IPO requirements makes IPO's more likely – an outcome favored by investors and entrepreneurs to raise new funds, “cash out”, and gain the prestige of being a “successful entrepreneur”. We also find that this lowering of the barriers to successful exits attracts more capital investment in the technology sector that is associated with the reform, yet reduces venture performance in that industry.

Specifically, we find that while lowering the barriers to successful IPO exit increases

IPO's overall, it increases the initial capitalization of firms founded after reform only in the technology industry. It either does not affect or may actually pull investment away from other sectors. Thus, investors ironically neglect sectors like manufacturing and domestic services and retail where Japan has traditional strengths. Finally, IPO market reform may help founders to launch technology firms, but can damage the performance of those very firms. This surprising result suggests that policy intended to encourage new technical firms instead has unintended effects. The new investment in technology firms, and the reduced performance that follows is also focused spatially in the metropolitan region from which the beliefs about technical entrepreneurship and IPO's emanate. Thus, IPO market reform is an unexpectedly complicated engine for economic prosperity.

Implications at the Nexus of Entrepreneurship and Institutional Theory

We also contribute at the nexus of entrepreneurship and institutional theory (Sine & David, 2010; Tolbert et al., 2010). Our results for the technology sector are particularly revealing here. First, we introduce the concept, *barrier to successful exit*. Prior research categorizes types of change that influence particular entrepreneurial activities (Romanelli, 1989; Sine & David, 2003). It identifies barriers to entry as well as barriers to growth and failure (Ciccone & Papaloannou, 2010; Peng, Yamakawa, & Lee, 2009a). In contrast, a barrier to successful exit combines several of these changes into one. A successful exit like IPO is similar to growth in that it is a *successful* financial outcome. But it is also like a failure in that it is an *exit* of capital and often individuals. Thus, lowering barriers to successful exit is a complex mix that is likely to have complicated outcomes.

Second, we indicate how lowering barriers to successful exit influences entrepreneurial outcomes. Prior research finds that lowering entry barriers increase new firm formation (Hiatt et

al., 2009; Hsu et al., 2007), while growth and failure barriers shift the mix of who becomes an entrepreneur (Eberhart et al., 2012; Eesley, 2010). But, successful exit barriers are more complicated, and so not surprisingly, their outcomes are more nuanced. Such barriers reduce the success chances of entrepreneurs in the affected industry, particularly when they gain resources. Thus, lowering successful exit barriers is a “two-edged” sword. It increases the investment and IPO activity that is beneficial to investors – at least in the short run – yet it lowers the performance of the investment targets suggesting that the medium and long term will have less desirable results. Thus, we contribute the insight that lowering the barriers to successful exit changes performance but only among the firms in industries that have the focused attention of investors who accept the beliefs associated with the reform.

Third, we also contribute by clarifying why this “two-edged” sword emerges, and suggest one resolution of the tension between resources and performance. As we argued above, much research finds that more resources are beneficial to the performance of new firms. Indeed, new firms often require resources in advance of revenues (Gartner, Carter, & Reynolds, 2010; Hallen & Eisenhardt, 2011; Pfeffer & Salancik, 1978). Substantial empirical evidence supports this argument, e.g., (Baum, Locke, & Smith, 2001; Cooper, Woo, & Dunkelberg, 1988; George, 2005). Yet in contrast, some other research finds that too many resources limit performance. Excess resources can reduce focus on rapid product commercialization, delaying effective performance (Katila & Shane, 2005). Excess resources can create opportunism and complacency within the management team, and enable excessive salaries and unnecessary costs (Tan & Peng, 2003). Excess resources can also encourage inappropriate risk-taking (Bromiley, 1991), and enable marginal firms in an industry to persist. Thus, there is a tension between too many and too few resources.

Our contribution is a possible resolution of this tension. We find that the benefits of many resources emerge when they are in the hands of advantaged entrepreneurs such as elite individuals who are likely to have the talent and skill to take advantage of the benefits that munificent resources provide. In contrast, less advantaged entrepreneurs appear to be less able to cope with the distractions that many resources bring. Overall, this finding reinforces the emerging literature that points to having the “right” type of entrepreneur in the “right” situation – e.g., Chinese returnee, user-founder, serial entrepreneur, etc. – at the helm of new firms (Dencker, Gruber, & Shah, 2009; Eesley & Roberts, 2012; Fuller & Rothaermel, 2012). In our study, this “right” type of entrepreneur is an elite entrepreneur who can take advantage of higher capitalization.

Overall, we contribute at the nexus of institutional theory and entrepreneurship by providing a more complete and realistic view of the interrelationship between equity markets, investors, types of entrepreneurs and venture performance. What emerges is a deeper understanding of the duality of lowered barriers to successful exit. Attracting capital and the lure of success increase the likelihood IPO’s will occur and focuses investment in IPO expected industries. On the other hand, these same factors can damage the performance firms in those very industries likely because of the richness of resources provided. A next step for future research is to examine the generalizability of this result in other settings.

Implications for Institutional Theory

We contribute to the literature on institutional theory. It is understood that institutions - regulative, cognitive and normative - are important barriers faced by entrepreneurs. Much extant research, though, emphasizes the institutional environment at the start of a firm’s life (Sørensen & Chang, 2006). We extend institutional theory to the closing of a firm’s entrepreneurial life by

clarifying that institutional change is likely to be effective when it changes the conditions at the *end* of a venture's entrepreneurial phase. Indeed, recent work is coalescing around the insight that institutional changes at the end of a firm changes the types of entrepreneurs who start firms, as well as the venture's subsequent performance. So, for example, elite founders start new firms with superior growth when corporate bankruptcy laws are made more lenient (Eberhart et al., 2012; Fan & White, 2003; Lee, Yamakawa, & Peng, 2007). Our results show that institutions that condition the successful exit of a firm have material effects on the amount invested in new firms, the kinds of firms that receive investments, and their subsequent performance. To this we add a more nuanced view of the common and blunt instrument of making it easier to IPO. We also show that the institutions affect new ventures through their effects on the behaviors of salient actors.

We also show evidence, consistent with cognitive and normative changes in beliefs, that Japanese actors compared their relative economic fortunes to the U.S. during the 1990's, by observing that IPO market reform is more salient where individuals take-it-for-granted that it applies – i.e., the technology sector. In other words, Japanese investors appear to have an “unexamined” understanding of IPOs as relevant in the technology sector where well-publicized U.S. IPOs occur and where those individuals who reformed IPO markets in Japan often gained their own experience. So, founders and investors in technology sector engage with the IPO market reform as expected – i.e., they have more IPO activity and invest more capital after the reform. But, founders and investors whose attention is *outside* the technology sector appear to either ignore the IPO market reform or have little understanding of its potential relevance to them. Thus, we find that Japanese entrepreneurs and investors imitate the technology sector emphasis of IPO markets in the U.S., even though IPOs may be more salient in other sectors of

the Japanese economy including manufacturing where Japan has traditional strengths. Other than possibly siphoning investment to technology firms from other sectors, it acts as if (in the short run, anyway) the IPO market reform had never occurred in large sectors of the Japanese economy.

Finally, our findings add to ideas of institution adoption and diffusion. Our results suggest that institutions adopted by observing and copying a different national context (in this case, the US during the technology boom) changed the behavior of investors gradually as new beliefs become accepted and formalized. This is supported by our empirical finding that while technology firms experience greater investment after reform, the effect is particularly strong in Tokyo. Tokyo is the locus of international trade and also where foreign firms are likely to have local headquarters and employ local executives generating opportunities for beliefs to be communicated and diffuse. Changes of investment actions, then, are focused where there are the most international social networks. Thus, IPO reform does not manifest equally across Japan as if it was an exogenous change of expected outcomes and implies an adoption of beliefs through social networks.

Overall, our findings indicate the relevance of institutional theory in understanding the consequences of institutional change on entrepreneurship. In particular, we find that institutional change to the conditions that end a firm's entrepreneurial phase has a powerful influence on the founding of other firms. This occurs because the expectation of likely outcomes is altered by the adopted beliefs that catalyzed the institutional change. For example, the changes are effective because they influence investment behavior. But that behavior is anchored in the beliefs associated with the technological investment context from which they were adopted. As a consequence, investors eschew Japan's context dependent investment opportunities in

manufacturing and trade. In this way we add to the idea that entrepreneurial behavior and investment is socially constructed and can be constrained by beliefs to cause behaviors that can seem less optimal.

Implications for Public Policy

A principal policy implication of our findings is the need for caution concerning IPO market reform. Lowering IPO requirements is likely to create more IPOs and attract more capital, but this reform may not necessarily benefit all industry sectors and all entrepreneurs. Rather, the reform may over-allocate investment into “popular” industries, and fail to support worthy entrepreneurs.

A key to effective deployment of IPO market reform is understanding where executives and investors believe that IPOs are relevant, and for which entrepreneurs they are most beneficial. Moreover, a central insight is that the primary influence of this reform from the public policy perspective is *not* the immediate effects of IPO. Rather, it is the more distant and subtle influence on attracting capital and affecting subsequent new firm performance. Lowering barriers to successful exit is thus a powerful - but unexpectedly complicated -institutional reform that can bring too much capital to the wrong entrepreneurs.

Conclusion

We began with observation that lowering IPO requirements for listing on public equity markets is a widespread institutional reform that is being adopted in many nations around the globe to promote entrepreneurial activity and economic prosperity. Using institutional theory, we find that IPO reform’s effects are complex and not anticipated by policy makers. It increases IPO activity and focuses increased investment. But we also find that this reform can have little effect outside of its focus, may waste capital, and may actually decrease new firm performance. Thus,

this reform yields unanticipated effects, and tends to harm the performance among new firms in the technical industries that it intended to help.

Overall, we contribute an understanding of where institutional change will be effective and for whom. We contribute to the literature on institutional theory in two ways. First, we show that institutional change was brought about due to changes in beliefs. As Japanese government and business leaders began comparing their economic performance and formal institutions to the U.S. during the boom in the late 1990's in the technology sector, they began to push for reform. Second, our findings suggest that institutions that are transferred directly to a different place are not likely to be equally effective in every country. Differing institutional environments more broadly in Japan as compared with the US result in differing levels of effectiveness. Therefore, we bring a more context-dependent view of institutional change to the literature on institutions and entrepreneurship.

Broadly, we conclude that institutional theory is a powerful lens. It indicates both the general implications of lowered barriers to successful exit, and the particular nuances of how that institutional reform plays out in Japan. It also emphasizes that preparing the institutional environment for easier success, may make that success more elusive.

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Table 1 – *Reformed IPO Market Changes*

Exchange	Min. Shares Offered	Min Shareholders	Net Asset Requirement JPY	Profit Requirement JPY	Market Value Minimum at IPO JPY
Tokyo – 1 st Section	20,000	800	1 billion	500 million	50 billion
MOTHERS / HECULES	1,000 / 500	300	none	none	500 million

Table 2a – *Summary Statistics*

<i>Univariate Statistics</i>	Pre-Reform		Post-Reform	
	Mean	Std. Dev.	Mean	Std. Dev.
IPO	2.082%	14.277%	2.449%	15.455%
Foreign Ownership	0.632%	7.928%	1.020%	10.049%
Employees	97.464	202.008	128.229	725.916
Founder Gender	93.411%	24.809%	93.107%	25.335%
Over 40 Founder	60.891%	48.801%	71.874%	44.949%
GDP Growth	1.067%	0.781%	0.924%	0.835%
Firm Age	25.505	132.078	8.133	2.139
Tokyo	20.006%	40.006%	28.257%	45.028%
Osaka	8.222%	27.471%	8.248%	27.511%
Primary	0.088%	2.858%	0.0437%	2.091%
Manufacturing	8.614%	28.058%	6.251%	24.211%
Whole/retail	17.124%	37.673%	15.316%	36.017%
Service	70.811%	45.465%	76.115%	42.641%
Finance	3.098%	17.327%	1.923%	13.736%
Technology	9.197%	27.434%	9.210%	28.919%
Growth	0.530%	0.169%	1.625%	1.640%
Observations	12491		6862	

Table 2b – *Summary Statistics IPO only firms*

<i>Univariate Statistics</i>	Pre-Reform		Post-Reform	
	Mean	Std. Dev.	Mean	Std. Dev.
Foreign Ownership	0.384%	6.201%	2.976%	17.043%
Employees	314.062	927.318	236.464	592.230
Founder Gender	98.076%	13.760%	98.214%	13.218%
Over 40 Founder	29.615%	45.744%	58.928%	49.343%
Firm Age	16.004	3.001	8.435	2.199
Tokyo	66.153%	47.409%	74.405%	43.769%
Osaka	8.076%	27.301%	3.571%	18.614%
Primary	0.000%	0.000%	0.000%	0.000%
Manufacturing	2.692%	16.217%	4.167%	20.042%
Whole/retail	22.307%	41.711%	10.714%	31.022%
Service	71.538%	45.211%	81.547%	38.907%
Finance	2.308%	15.043%	1.786%	13.282%
Technology	22.308%	27.434%	17.857%	28.919%
Growth	0.707%	0.274%	2.359%	2.672%
Observations	260		168	

Table 3 - *Correlation Matrix*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Foreign Owners	1.000							
(2) Employees	0.020	1.000						
(3) Founder Gender	0.006	0.038	1.000					
(4) Over 40 Founder	0.021	0.101	-0.057	1.000				
(5) GDP Growth	-0.008	-0.030	0.001	-0.061	1.000			
(6) Firm Age	-0.006	0.002	-0.005	-0.084	0.203	1.000		
(7) Primary	-0.002	-0.012	0.007	-0.001	0.001	-0.001	1.000	
(8) Manufacturing	-0.008	-0.073	0.021	-0.027	-0.009	-0.016	-0.008	1.000
(9) Wholesale/Retail	0.066	-0.087	0.028	-0.076	0.039	-0.007	-0.012	-0.133
(10) Service	-0.045	0.119	-0.032	0.094	-0.021	0.020	-0.042	-0.470
(11) Finance	-0.009	-0.001	-0.010	-0.038	-0.017	-0.009	-0.005	-0.051
(12) Technology	0.008	-0.037	0.049	-0.138	0.021	-0.020	-0.008	-0.090
(13) Tokyo	0.089	-0.015	0.016	-0.117	0.016	-0.011	-0.008	-0.060
(14) Osaka	0.000	-0.021	-0.011	-0.043	-0.003	0.010	-0.008	-0.001
(15) Reform	0.021	-0.038	-0.015	0.084	0.188	-0.068	-0.005	-0.045
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
(9) Wholesale/Retail	1.000							
(10) Service	-0.719	1.000						
(11) Finance	-0.078	-0.277	1.000					
(12) Technology	-0.134	0.166	-0.053	1.000				
(13) Tokyo	-0.002	0.041	-0.012	0.241	1.000			
(14) Osaka	0.049	-0.033	-0.017	-0.014	-0.159	1.000		
(15) Reform	-0.022	0.056	-0.028	0.036	0.088	0.005	1.000	

Table 4 IPO Likelihood (Periods 1990-1999, 2000-2007)

DV = IPO, Piecewise Cox Proportional Hazard Model				
	Controls	1990 – 1999	2000-2008	t-statistic
<i>GDP Growth</i>	0.000*** (0.000)			
<i>Employees</i>	0.685*** (0.0267)			
<i>Initial Capital</i>	1.983*** (0.046)			
<i>Reform</i>		0.000*** (0.000)	0.000*** (0.000)	0.385
<i>Gender</i>		3.464* (2.021)	2.430* (1.100)	0.173
<i>Over 40 Founder</i>		0.446*** (0.138)	0.390*** (0.184)	0.015
<i>Manufacturing</i>		0.233* (0.170)	0.646 (0.459)	0.826
<i>Wholesale/Retail</i>		0.382 (0.089)	1.618 (0.801)	3.134***
<i>Service</i>		0.217** (0.134)	0.332* (0.198)	0.503
<i>Finance (non-bank)</i>		0.152** (0.129)	1.054 (0.766)	1.164
<i>Technology</i>		0.925 (0.204)	7.146*** (1.193)	1.883*
Tokyo		5.592*** (1.272)	10.265*** (1.386)	6.523***
Osaka		1.335 (0.715)	4.156*** (0.980)	3.988***
N		31,509		
Number of Subjects		19,133		
Number of failures (IPO's)		428		
χ^2		15145.40***		

Robust standard errors in Parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Table 5 – *Initial Capital Effects*

DV – Initial Capital (log) GLM Differences-in- Differences	(1) Controls	(2) Technology Interaction	(3) City Interactions	(4) Industry Interactions
<i>Foreign Ownership</i>	1.401*** (0.214)	1.366*** (0.213)	1.399*** (0.214)	1.365*** (0.213)
<i>Founder Gender</i>	0.347*** (0.068)	0.345*** (0.068)	0.344*** (0.068)	0.341*** (0.068)
<i>Over 40 Founder</i>	0.814*** (0.032)	0.814*** (0.031)	0.816*** (0.031)	0.813*** (0.031)
<i>GDP Growth</i>	7.111*** (0.053)	7.057*** (0.052)	7.081*** (0.053)	7.032*** (0.053)
<i>Tokyo</i>	0.422*** (0.431)	0.424*** (0.043)	0.257*** (0.049)	0.266*** (0.049)
<i>Osaka</i>	0.014 (0.054)	0.012 (0.054)	-0.007 (0.062)	-0.002 (0.062)
<i>Reform</i>	-0.065 (0.079)	0.394 (0.631)	-0.212** (0.084)	0.427 (0.631)
<i>Primary Industry X Reform</i>		-1.160** (0.675)	-0.598** (0.247)	-1.223* (0.671)
<i>Manufacturing X Reform</i>				-0.262 (0.639)
<i>Wholesale/Retail X Reform</i>				-0.381 (0.629)
<i>Services X Reform</i>				-0.755 (0.624)
<i>Finance X Reform</i>				-0.289 (0.656)
<i>Technology X Reform</i>		0.398** (0.098)		0.206** (0.105)
<i>Tokyo X Reform</i>			0.488*** (0.090)	0.474*** (0.094)
<i>Osaka X Reform</i>			0.085 (0.125)	0.059 (0.124)
<i>Constant</i>	37,455*** (0.339)	37,089*** (0.377)	37,386*** (0.337)	36,989*** (0.375)
<i>N</i>	18,839	18,839	18,839	18,839
<i>Industry Fixed Effects</i>	Yes	Yes	Yes	Yes
<i>Annual Fixed Effects</i>	Yes	Yes	Yes	Yes

Robust standard errors in Parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Table 6 – Performance Effects

DV – Growth GLM Differences-in- Differences	(1) Controls	(2) Tech Interaction	(3) City Interactions	(4) Industry Interactions	(5) Industry-City Interactions
<i>Foreign Ownership</i>	0.174*** (0.066)	0.174*** (0.066)	0.171*** (0.066)	0.161** (0.065)	0.167** (0.065)
<i>Employees</i>	0.236*** (0.014)	0.236*** (0.014)	0.237*** (0.014)	0.234*** (0.014)	0.238*** (0.014)
<i>Founder Gender</i>	0.075*** (0.013)	0.076*** (0.013)	0.074*** (0.013)	0.072*** (0.013)	0.075*** (0.013)
<i>Over 40 Founder</i>	0.027*** (0.007)	0.027*** (0.007)	0.027*** (0.007)	0.025*** (0.007)	0.029*** (0.007)
<i>GDP Growth</i>	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.001 (0.001)	0.001 (0.002)
<i>Firm Age</i>	-2.222*** (0.227)	-2.222*** (0.227)	-2.217*** (0.226)	-2.216*** (0.224)	-2.211*** (0.225)
<i>Firm Age²</i>	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
<i>Tokyo</i>	0.141*** (0.022)	0.142*** (0.022)	0.059*** (0.006)	0.146*** (0.023)	0.051*** (0.006)
<i>Osaka</i>	0.047*** (0.013)	0.047*** (0.013)	0.040*** (0.007)	0.045*** (0.013)	0.046*** (0.013)
<i>Reform</i>	-2.117*** (0.225)	-2.101*** (0.224)	-2.172*** (0.231)	-1.853*** (0.336)	-2.157*** (0.230)
<i>Primary X Reform</i>		0.030 (0.238)	0.084 (0.237)	-0.209 (0.344)	0.081 (0.237)
<i>Manufacturing X Reform</i>				0.003 (0.292)	
<i>Whole/retail X Reform</i>				-0.077 (0.248)	
<i>Service X Reform</i>				-0.317 (0.245)	
<i>Finance X Reform</i>				0.101 (0.278)	
<i>Technology X Reform</i>		-0.136*** (0.025)		-0.073*** (0.022)	
<i>Tokyo X Reform</i>			0.203*** (0.046)		0.263*** (0.056)
<i>Osaka X Reform</i>			0.023 (0.036)		
<i>Tokyo X Technology</i>					-0.012 (0.014)
<i>Tokyo X Technology X Reform</i>					-0.296*** (0.056)
<i>Constant</i>	45.647*** (4.683)	45.643*** (4.681)	45.549*** (4.663)	45.433*** (4.629)	45.386*** (4.642)
<i>Observations</i>	19,168	19,168	19,168	19,168	19,168
<i>Industry Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes
<i>Annual Fixed Effects</i>	Yes	Yes	Yes	Yes	Yes

Robust standard errors in Parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Appendix 1 – Initial Capital Effects - Quantile Regressions

GLM Regressions DV= Initial Capital (log)	(1) 10 th Quantile	(2) 25 th Quantile	(3) 75 th Quantile	(4) 90 th Quantile
<i>Foreign Ownership</i>	0.957*** (0.174)	1.299*** (0.238)	1.550*** (0.200)	2.245*** (0.557)
<i>Founder Gender</i>	0.288* (0.151)	0.223*** (0.043)	0.192 (0.135)	0.265*** (0.094)
<i>Over 40 Founder</i>	0.000 (0.000)	0.182*** (0.052)	0.859*** (0.042)	0.787*** (0.053)
<i>GDP Growth</i>	8.802* (4.545)	8.565* (4.461)	5.162* (2.812)	4.165* (2.223)
<i>Tokyo</i>	0.000 (0.000)	0.213*** (0.061)	0.292*** (0.051)	0.630*** (0.161)
<i>Osaka</i>	0.000 (0.000)	0.183** (0.062)	-0.112 (0.143)	0.239** (0.081)
<i>Reform</i>	0.000 (0.512)	0.173 (0.733)	-0.573 (1.521)	1.545 (1.227)
<i>Primary Industry X Reform</i>	0.041 (0.703)	-0.337 (0.724)	-0.674 (1.724)	-3.377** (1.407)
<i>Manufacturing X Reform</i>	-1.163** (0.591)	-0.173 (0.681)	0.573 (1.561)	-1.193 (1.273)
<i>Wholesale/Retail X Reform</i>	-0.916 (0.593)	-0.068 (0.706)	0.674 (1.503)	-1.512 (1.326)
<i>Services X Reform</i>	-0.916* (0.537)	-0.386 (0.690)	0.072 (1.564)	-1.893 (1.269)
<i>Finance X Reform</i>	-0.288 (0.613)	-0.163 (0.710)	0.707 (1.468)	-1.199 (1.412)
<i>Technology X Reform</i>	-0.000 (0.043)	0.202** (0.084)	0.665*** (0.149)	0.201 (0.245)
<i>Tokyo X Reform</i>	0.916*** (0.153)	0.333** (0.124)	0.137 (0.139)	0.398* (0.232)
<i>Osaka X Reform</i>	1.021*** (0.191)	-0.021 (0.067)	-0.042 (0.223)	-0.216 (0.198)
Constant	42.126** (17.144)	41.316** (16.805)	32.001*** (10.614)	29.518*** (8.471)
Observations	13,899	13,899	13,899	13,899
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Robust standard errors in Parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Appendix 2 – Performance Quantile Effects

Quantile Regressions DV= <i>Growth</i>	(1) 10 th Quantile	(2) 25 th Quantile	(3) 75 th Quantile	(4) 90 th Quantile
<i>Foreign Ownership</i>	0.059*** (0.016)	0.082*** (0.019)	0.145*** (0.055)	0.246*** (0.087)
<i>Employees</i>	0.083*** (0.002)	0.082*** (0.001)	0.083*** (0.002)	0.087*** (0.002)
<i>Founder Gender</i>	0.034*** (0.006)	0.023*** (0.004)	0.033*** (0.005)	0.041*** (0.012)
<i>Over 40 Founder</i>	-0.005* (0.003)	-0.004* (0.002)	-0.005* (0.003)	-0.000 (0.005)
<i>GDP Growth</i>	-0.024*** (0.004)	-0.023*** (0.003)	-0.026*** (0.006)	-0.028*** (0.009)
<i>Firm Age</i>	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
<i>Tokyo</i>	0.018*** (0.003)	0.023*** (0.002)	0.044*** (0.004)	0.057*** (0.009)
<i>Osaka</i>	0.020*** (0.005)	0.022*** (0.002)	0.033*** (0.006)	0.037*** (0.007)
<i>Reform</i>	0.124** (0.053)	0.161*** (0.050)	0.264** (0.116)	0.208** (0.104)
<i>Primary X Reform</i>	0.523*** (0.077)	0.353*** (0.064)	0.056 (0.156)	-0.248** (0.123)
<i>Manufacturing X Reform</i>	-0.058 (0.058)	-0.062 (0.053)	-0.101 (0.122)	0.021 (0.123)
<i>Whole/retail X Reform</i>	-0.037 (0.058)	-0.048 (0.048)	-0.100 (0.121)	-0.056 (0.109)
<i>Service X Reform</i>	-0.100* (0.051)	-0.113** (0.049)	-0.204* (0.113)	-0.198** (0.096)
<i>Finance X Reform</i>	-0.018 (0.051)	0.009 (0.045)	-0.038 (0.113)	-0.105 (0.194)
<i>Technology X Reform</i>	0.014 (0.020)	-0.010 (0.012)	-0.056*** (0.014)	-0.115*** (0.020)
<i>Tokyo X Reform</i>	0.035*** (0.012)	0.036*** (0.009)	0.090*** (0.019)	0.161*** (0.040)
<i>Osaka X Reform</i>	0.000 (0.032)	0.012 (0.012)	0.042** (0.020)	0.094*** (0.026)
<i>Constant</i>	-0.129*** (0.033)	-0.070*** (0.011)	0.022 (0.037)	0.057 (0.056)
<i>Observations</i>	19,168	19,168	19,168	19,168
<i>Industry Fixed Effects</i>	Yes	Yes	Yes	Yes
<i>Annual Fixed Effects</i>	Yes	Yes	Yes	Yes

Robust standard errors in Parentheses * p < 0.10, ** p < 0.05, *** p < 0.01