



Economic freedom and cross-border venture capital performance

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ABSTRACT

We investigate the determinants of cross-border venture capital (VC) performance using a large sample of 10,205 cross-border VC investments by 1906 foreign VC firms (VCs) in 6535 domestic portfolio companies. We focus on the impact of a domestic country's economic freedom on the performance of both VC investments and portfolio companies using a probit model and the Cox hazard model. After controlling for other related factors of domestic countries, portfolio companies, VCs and the global VC market, as well as year and industry fixed effects, we find that a domestic country's economic freedom is crucial to cross-border VC performance. In particular, in a more economically free country, as measured by the raw values of, quartiles of or the ranking in the index of economic freedom (IEF), a foreign VC-backed portfolio company is more likely to pull off a successful exit through an IPO (initial public offering) or an M&A (merger and acquisition), and a foreign VC firm is likely to spend a shorter investment duration in the portfolio company. We also identify interesting evidence on the impact of many other level factors of domestic countries, portfolio companies, VCs and the global VC market on cross-border VC performance.

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1. Introduction

Venture capital (VC) is widely regarded as an active driving force in fostering entrepreneurship, financing startups, creating public companies and encouraging innovations in the U.S. over the past several decades (Barry et al., 1990; Kaplan and Strömberg, 2003; Kortum and Lerner, 2000; Lerner, 1994; Sahlman, 1990). It is widely believed that VC is instrumental in bringing innovations to markets at a rapid pace, thereby enhancing economic growth. VC has been increasingly internationalized, as marked by an increasing number of cross-border entries of VCs starting from the mid-1990s. Cross-border VC is crucial to growth-oriented but high-risk new ventures, especially in countries where the domestic supply of private equity is limited.

Our focus is to examine the impact of a domestic country's economic freedom on cross-border VC performance. The idea that economic freedom is essential for economic efficiency has been a cornerstone in economic theory since Smith (1776), who argues for the role of “the invisible hand” in well-functioning markets. In theory, a free economy is defined as the so-called “Arrow–Debreu world,” where economic efficiency is guaranteed in general equilibrium (Arrow and Debreu, 1954; Hart, 1980; McKenzie, 1959). In empirical studies, economic freedom has been widely observed to be important to economic growth (Gwartney et al., 1999; Haan and Sturm, 2000; Heckelman, 2000; Wu and Davis, 1999), income equality (Berggren, 1999; Scully, 2002) and employment (Feldmann, 2007, 2008).

For VC investments, the role of economic freedom lies in two aspects. On the one hand, free markets are widely believed to provide more opportunities for early stage and mostly not-yet-profitable companies, which is essential to VC investments (Bjørnskov and Foss, 2008; Kreft and Sobel, 2005; Nyström, 2008; Sobel et al., 2007; Wenekers et al., 2002). The more

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constraints there are on the allocation of resources in production and consumption, the fewer growth opportunities and chances of success for VCs. On the other hand, the government is more likely to act as a “helping hand” instead of a “grabbing hand” in free markets, which is also essential for the survival and success of VCs. In an economically free market, the burden of bureaucracy and corruption would be smaller and the government would try to provide a steady and reliable monetary environment, a free and open investment environment and a transparent and open financial system. Contract enforcement and investor protection, especially regarding private properties, also tend to be better in free markets. For cross-border VC investments, economic freedom is particularly important since investment risk, transaction costs, asymmetric information and agency problems are much more severe, which makes these types of investments more sensitive to the domestic country's economic environment (Cumming et al., 2006; Gompers et al., 2003; Jeng and Wells, 2000).

Using a large sample of 10,205 cross-border VC investments from 1906 foreign VCs in 6535 domestic portfolio companies covering 35 countries, we investigate the impact of a domestic country's economic freedom on cross-border VC performance. We provide analysis of both VC investments and portfolio companies using both a probit model and the Cox hazard model. After controlling for other related factors of domestic countries, portfolio companies, VCs and the global VC market, as well as industry and year fixed effects, we find that a domestic country's economic freedom is crucial to the performance of cross-border VC. In particular, in an economically free country, as measured by either the raw values of, quartiles of or the ranking in economic freedom over the investment period, a foreign VC-backed portfolio company is more likely to pull off a successful exit through an IPO (initial public offering) or an M&A (merger and acquisition), and a foreign VC firm is likely to spend a shorter investment duration in a portfolio company. Specifically, a one standard deviation increase in our measure of economic freedom—*Index of Economic Freedom, Economic Freedom Quartile or Ranking in Economic Freedom*—at the mean level increases the likelihood of a successful exit by 2.02%, 2.76% or 3.02%, and the hazard of a successful exit by 5.35%, 12.59% or 13.69%, respectively.

Our main findings are robust to many tests, including tests on a change in economic freedom, tests on exit choices (IPO versus M&A), tests on decomposed effects of economic freedom, tests considering domestic country fixed effects and tests using subsamples and alternative measures.

We further find several interesting results from other related factors of domestic countries, portfolio companies, VCs and the global VC market. For example, we find legal quality to be positively related to the likelihood of a successful exit through an IPO or an M&A, which is consistent with the empirical work by Cumming et al. (2006). GDP per capital is found to be negatively related to cross-border VC performance, which is somewhat consistent with the well-known convergence hypothesis in the exogenous growth literature (Barro, 1991, 1996). Also, a domestic country's entrepreneurial activity as measured by the number of VC deals and the number of patents granted over the investment period is positively associated with the likelihood of a successful exit through an IPO or an M&A. Further, our results provide evidence confirming the positive impact of portfolio company quality and local VCs' participation and the negative impact of early stage investments and VCs' portfolio size on cross-border VC performance, which has been examined in previous studies (Cumming, 2006; Cumming and Dai, 2010, 2011; Dai et al., 2010; Mäkelä and Maula, 2008; Tykvová and Schertler, 2011). In particular, our finding that market conditions have a strong impact on the exit choice between an IPO and an M&A sheds light on the exit timing of cross-border VCs.

There are few studies on cross-border VC performance that are closely related to ours.¹ Wang and Wang (2011) investigate the determinants of cross-border VC performance in China using a small sample of 495 VC investments in 243 portfolio companies by 84 foreign VCs. They document that foreign VCs' human capital has little importance to the likelihood of successful exits. In contrast, the domestic entrepreneurs' experience is crucial to VC performance. Our study differs significantly from that of Wang and Wang (2011) in that we provide an international study on cross-border VC performance covering 35 domestic countries, while Wang and Wang (2011) focus on one domestic country, China. Also, we investigate the impact of a domestic country's economic freedom on cross-border VC performance after controlling for many other level factors of domestic countries, portfolio companies, VCs and the global VC market, while Wang and Wang (2011) focus on foreign VCs' human capital and domestic entrepreneurs' experience.

Dai et al. (2010) partially address cross-border VC performance using a sample of 4254 rounds of VC financing by 468 VCs in six Asian countries. They suggest a positive role of local VCs; that is, cooperation with local VCs helps mitigate information asymmetry and contributes to the likelihood of a portfolio company's successful exit through an IPO. Different from Dai et al. (2010), we emphasize the role of a country-level factor, namely the domestic country's economic freedom, in cross-border VC performance while controlling for many other factors including local VCs' participation which is also examined in their study. Our results on the impact of local VCs' participation are quite consistent with those of Dai et al. (2010), and provide supporting evidence to their finding.

Another closely related study is that of Watson and George (2010), who examine the influence of several country-level factors, such as the size of the economy, business freedom, trade protection, burden of taxation, government size, price stability, openness, corruption and cultural distance, on the rate of return in 72 foreign acquisitions from 144 transactions in 24 different countries. Even though the research question addressed by Watson and George (2010) is similar to ours, there are substantial differences between the two studies. First, they use a small sample consisting of only foreign acquisitions of private equity, which cannot represent the bulk of cross-border VC investments. We use a large sample of 10,205 cross-border VC investments by 1906 foreign VCs in

¹ For a comparison of VC investment characteristics in different countries, see Black and Gilson (1998), Lockett et al. (2002), Cumming and MacIntosh (2003), Bruton et al. (2004), Lerner and Schoar (2005), Mayer et al. (2005), Ahlstrom and Bruton (2006), Cumming et al. (2006), Schwienbacher (2008), Cumming et al. (2010), etc. For other aspects of cross-border VC investments (such as economic factors in attracting funding from foreign VCs and the role of local investors), see Mäkelä and Maula (2008), Balcarcel et al. (2009), Schertler and Tykvová (2011), Chemmanur et al. (2011), Tykvová and Schertler (2011), etc. For determinants of domestic VC performance, see Hochberg et al. (2007), Zarutskie (2007), Bottazzi et al. (2008), Gompers et al. (2008), Nahata (2008), etc.

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