International venture capital research: From cross-country comparisons to crossing borders

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Venture capital (VC) has become an international phenomenon, and VC firms are a specific kind of service firm whose characteristics have distinctive implications for international behaviour. There is now a disparate body of research on international aspects of VC across a number of disciplines comprising finance, economics, strategy, entrepreneurship, international business and economic geography. A novel aspect of this paper is that we review and synthesize this disparate literature. A number of research gaps and limitations in the theoretical and methodological approaches involved in previous studies are identified and suggestions made for further research. We show that the vast majority of the literature relates to *cross-country* comparisons; that is, macro-level comparisons of VC industries across different countries and micro-level comparisons of VC behaviour across countries. From our review of the literature, we argue that an under-researched area concerns the influence of institutional contexts, especially the role of social networks and cultures. Furthermore, our review of the literature indicates that there is a major research gap in relation to work dealing with the *crossing of country borders* by VC firms. We suggest that resource-based, capabilities, institutional and network theories may be offer insights to further our understanding of the behaviour of VC firms in this area.

Introduction

This paper reviews the literature relating to international venture capital (VC). Following Wright and Robbie (1998), we adopt a broad definition of VC to include the range of finance from early stage 'classic' VC through to later stage private equity for management buy-outs and buy-ins (MBO/Is). While the US market is generally characterized as focusing on the earlier stages of investment, internationally, members of VC associations provide the full spectrum of equity funds for privately owned enterprises and firm-level studies have typically drawn their samples from this wider membership. There is also evidence that venture-backed MBO/Is may involve entrepreneurial activity in uncertain environments (Bruining and Wright 2002). We consider international VC to involve cross-country comparisons of VC firms as well as cross-border flows into VC funds and outflows of funds into investments in other countries.

The motivation for this review is threefold. First, VC has become a conduit for the flow of capital and ideas internationally (Bygrave and Timmons 1999; Patricof 1989). As we describe in more detail in the next section, international VC is an increasingly important phenomenon in terms of the sums of money involved and its geographical diversity. In Europe, for example, over the period since 1988, the share of inflows of VC from non-domestic sources more than doubled to 45% of the market, while the share of total outflows accounted for by international investments rose almost fourfold to 29%.

Second, the burgeoning literature on international VC is appearing across a disparate range of academic communities, including economics, finance, strategy, entrepreneurship, international business and economic geography. In part, these literatures overlap, but they also give rise to different perspectives, levels of analysis and themes. Our focus is on the factors involved in the development of VC markets and the behaviour of VC firms within those markets. An important contribution of this paper is to organize systematically this material into two levels and two themes. The levels concern the macro level relating to the development of the VC industry in a country and the micro level of the behaviour of the VC firm; and the internationalization themes concern cross-country comparisons and crossing-border activities.

Third, while internationalization in services is different from that in manufacturing (Anand and Delios 1997; Brouthers and Brouthers 2003; Domke-Damonte 2000), the sector is heterogeneous (Buckley *et al.* 1992; Miller and Parkhe 1998) with VC firms having distinctive implications for international behaviour. In contrast to consultants, lawyers and accountants, venture capitalists provide both guidance and money (Barry 1994). In contrast to banks, VC investors provide specialized resources and economies of scale in locating and financing potentially successful ventures in risky settings where it is costly for lenders and borrowers to get together because of asymmetric information problems (Amit *et al.* 1998; Jeng and Wells 2000; Wright and Robbie 1998). For start-ups, there are few tangible assets for banks to obtain collateral, and the problems of adverse selection remain in relation to later stage deals (Robbie and Wright 1996). The information asymmetry problems in VC investments are also likely to be greater than those faced by M&A advisers involved in acquisitions of established corporations. Also in contrast to banks, VC firms, especially closed-end limited partnerships, invest for a fixed term before anticipating an exit to realize their returns. In contrast to M&A specialists whose main focus is transaction completion, VC firms provide a continuing relationship with their investees involving an active value-adding and monitoring role (Jeng and Wells 2000) that requires specialist skills (Black and Gilson 1998). Finally, VC firms render their services in a distinctive, multi-stage sequential investment process (Hall and Hofer 1993; Tyebjee and Bruno 1984).

In reviewing the international VC literature, we limit the scope of our analysis in three ways. We excluded work relating to the development of financial firms and markets more generally, within which VC may play a part. Similarly, the general entrepreneurial literature relating to the behavioural and psychological perspectives of individual opportunity recognition in which the decision to seek VC is a choice variable is also outside the scope of our review. Future reviews that focus on these two sets of literatures may usefully incorporate the role of international VC. The growing body of single-country studies from outside the US is also beyond the scope of our review.

The remainder of the paper is structured as follows. First, we briefly summarize trends in international VC. We then review the literature under three main themes. The second section takes a macro-level perspective to review the factors influencing the international development of VC markets, both at the level of cross-country comparisons and the development of international VC industries across countries. The third section adopts a micro-level perspective to provide an overview of the literature on cross-country comparisons of VC behaviour, followed by a review of VC firms' behaviour when they cross borders. In the fourth section, we reflect on the literature reviewed to discuss research questions for further research, appropriate theoretical perspectives and methodological approaches. Finally, we draw conclusions.

Trends in International Venture Capital

The increasing importance of international VC, noted above, has been driven by a number of factors. First, there has been international development of VC firms. Originating in the US, VC firms spread to the UK and Western Europe (Ooghe *et al.* 1991) and to Japan. Second, at the same time as developed markets are becoming saturated, many developing nations have undertaken radical regulatory reforms, making them more conducive investment destinations as VC firms perceive increased demand for investment opportunities (Gompers and Lerner 1998). Venture capital markets in Singapore, Taiwan and Hong Kong have become well established (Kenney *et al.* 2002a,b,c) while, more recently, significant growth has occurred in other Asian countries notably India. Third, opportunities for transnational investment (Aylward 1998) by foreign VC firms arise in countries with limited domestic supply and can help stimulate domestic markets by creating exit opportunities in foreign markets (Maula and Makela 2003). Fourth, VC is emerging as an important growth engine in the transition of the former centrally planned economies of central and eastern Europe, especially in countries such as Hungary and Poland (Wright *et al.* 2004a). Most recently, VC is growing rapidly in China. The variation in the development of VC industries across countries raises important questions concerning the causes of these developments and the behaviour of venture capitalists in different markets, which are increasingly interesting international agencies such as the World Bank and the OECD (Baygan and Freudenberg 2000; Kenney *et al.* 2002c).

The outcome of these driving factors is that international VC inflows and outflows have become highly significant (Baygan and Freudenberg 2000; EVCA 1999). In Europe, for example, over the period since 1988, inflows of VC from non-domestic sources rose from €0.7 billion (20% of funds raised) to a peak of €22.8 billion (47.6%) in 2000 and €12 billion (44.6%) in 2003 (Table 1). With respect to international outflows into investments, the rise has been from €0.3 billion (7.7% of investments) in 1988 to a peak of €9.5 billion (27.3%) in 2000 and €8.4 billion (28.8%) in 2003.

A more detailed analysis of the importance of international VC by country is shown in Table 2). The importance of cross-border inflows of VC is emphasized by the recognition that, in both Europe and Asia, half of new funds raised come from non-domestic sources, although in the US this figure is generally less than 10% (Gompers 2005). While not as important in terms of funds invested, cross-border disbursements still account for a significant 25% of VC investments in Europe and 35% of investments in Asia. In Europe as a whole, 29% of fund inflows are from outside Europe, with a further 21% of inflows coming from elsewhere in Europe, but outside the particular country to which the fund relates. In contrast, 22% of funds invested in Europe are invested elsewhere in Europe outside the originating country, with a further 3% invested outside Europe. In Asia, while the total percentage of foreign fund inflows is about the same as for Europe at around 50%, a much greater percentage

Table 1. International VC in Europe 1988–2003

Year	Amount of funds raised non-domestically (€m)	Within Europe but outside country: % of total funds raised	Outside Europe: % of total funds raised	Amount of funds invested non-domestically (€)	Within region but outside country: % of total funds invested	Outside region: % of total funds invested
1988	706	11.2	9.1	267	4.3	3.4
1989	1883	8.0	24.4	515	8.9	3.2
1990	1318	14.4	14.4	554	10.8	2.7
1991	964	13.0	10.0	435	6.6	2.9
1992	695	7.7	8.8	519	6.6	2.9
1993	648	7.2	11.7	435	7.3	3.3
1994	1746	7.0	19.9	734	11.3	2.1
1995	1001	11.6	11.2	673	9.3	2.9
1996	2241	11.4	16.7	1104	12.5	3.8
1997	10,163	17.3	33.5	1884	17.0	2.5
1998	9738	16.8	31.1	3355	16.8	6.4
1999	10,894	21.3	21.6	5705	17.7	5.0
2000	22,838	20.7	26.9	9546	20.1	7.2
2001	21,205	18.4	34.6	6979	23.3	5.4
2002	13,762	21.1	28.9	6726	21.5	2.8
2003	12,035	16.3	28.3	8389	25.1	3.7

Source: EVCA.

comes from outside Asia (37%) and a correspondingly smaller percentage from other countries within the region (14%). With respect to outward investments, there is a similar pattern to Europe with the largest proportion of foreign investments being within the region (29%) and only a small percentage further afield (6%). Within both Europe and Asia, there are larger variations between individual countries with respect to the foreign inflows and outflows of funds. In their study of OECD countries, Baygan and Freudenberg (2000) show that, in some markets, foreign VC investment can outweigh domestic investment.

The importance of cross-border VC is emphasized in comparisons with early stage investments. Considerable VC research attention is devoted to early stage finance, yet typically larger shares of funds are involved in cross-border investments. In Asia, for example, 26% of investments in 2002 were to seed and start-up projects. In contrast, 35% of investments involved cross-border deals. Similarly, in Europe, 11% of investments in 2002 went to seed and start-up ventures, whereas 24% of investments were cross-border.

Macro Analysis: The Development of International Venture Capital Markets

In this section, we focus on two bodies of literature that examine macro issues relating to the international development of VC markets. First, we focus on studies that consider the development of VC and private equity markets across different countries, i.e. the cross-country comparisons of the development of VC industries. The macro study of cross-country comparisons has been the dominant approach to investigating international VC at the macro level. Second, we examine the relatively neglected issue of the process of development of international VC industries.

Comparisons of Cross-Country Developments

As highlighted above, the dominant focus of research into the macro-level development of international VC has been on differences in VC industries across countries. A population ecology perspective was adopted by Manigart (1994), who found that the density of VC firms in a particular country has a strong effect on the founding

Table 2. International VC in Europe and Asia

Country Europe	Amount of funds raised non-domestically (US$m)	Within region but outside country: % of total funds raised Europe	Outside region % of total funds raised Outside Europe	Amount of funds invested non-domestically (US$m)	Within region but outside country: % of total funds invested Europe	Outside region: % of total funds invested Outside Europe
Austria	48	26	0	39	25	1
Belgium	11	8	0	149	38	1
Czech R	21	40	0	27	71	0
Denmark	37	12	0	85	26	7
Finland	219	29	0	123	24	2
France	2885	32	25	195	2	1
Germany	249	13	1	760	22	7
Greece	7	3	7	31	58	6
Hungary	13	100	0	1	6	0
Iceland	0	0	0	6	0.7	41
Ireland	195	65	27	27	24	1
Italy	358	10	7	138	4	1
Netherlands	127	7	3	634	29	6
Norway	19	4	1	56	12	14
Poland	37	30	0	9	4	3
Portugal	9	11	0	26	23	13
Romania	11	7	72	0	0	0
Slovakia	2	20	0	0	0	0
Spain	291	29	14	137	6	7
Sweden	566	52	31	906	56	3
Switzerland	2	1	0	116	12	23
UK	16,575	19	44	3564	32	2
Total Europe	21,682	21	29	7029	22	3
Asia		Asia	Non-Asia		Asia	Non-Asia
Australia	805	5	12	141	4	1
China	2841	23	24	795	13	1
Hong Kong	23,157	22	67	9155	85	4
India	1929	19	60	116	4	1
Indonesia	61	16	24	0	0	0
Japan	4133	3	18	1189	5	8
Korea	2188	7	28	469	6	2
Malaysia	397	23	26	41	7	1
New Zealand	76	13	0	22	9	0
Philippines	169	15	43	29	16	4
Singapore	6438	28	38	3568	64	21
Taiwan	939	5	10	780	7	14
Thailand	464	14	66	15	4	1
Vietnam	99	11	76	21	20	0
Total Asia	44,249	14	37	16,341	29	6

Source: European countries: *European Venture Capital Association Directory* 2004; Asian countries: *Guide to Venture Capital in Asia*, 14th edition, *Asian Venture Capital Journal*, 2004.

of new VC firms. Manigart also found that, when populations in neighbouring countries emerge before the local VC population, legitimation for the emergence of the local population is increased.

A greater contribution to our understanding the development of VC markets is provided by papers that have used some dimension of an institutional perspective. Initial work focused on the financial environment, in particular, that relating to the stock market. Black and Gilson (1998) explain the presence of much stronger VC industries in stock market-centred systems by arguing that a well-developed stock market permits venture capitalists to exit through an IPO and that the ability to realize gains in this way is critical to the existence of a vibrant VC market. They argue that these institutional factors are more important than cultural differences in the willingness of individuals to take risks. Also they point to the importance of path dependencies in the development of VC markets which make it difficult, for example, for bank-centred systems to establish appropriate institutional infrastructures to support the development of VC.

Jeng and Wells (2000) and Megginson (2004) lend some support to the Black and Gilson argument regarding the importance of stock markets, but find that market capitalization growth is not a significant determinant of VC, while government policies can have a strong impact through setting the regulatory framework. Jeng and Wells also make an important distinction between the factors affecting the development of early stage and later stage VC activity, notably that IPOs are a significant determinant only of later stage VC investing across countries. Botazzi and Da Rin (2002) show that high VC activity does not necessarily correspond to more IPOs.

Mayer *et al*. (2005) compare sources of funds and investment activities of venture capitalists in Germany, Israel, Japan and the UK, and find significant differences across countries. Venture capital investment patterns were also found to differ across countries in terms of the stage, sector of financed companies and geographical focus of investments. They find that differences in investment patterns are related to the variations in funding sources, but that the relations differ across countries. Megginson (2004) notes the importance of different sources of funds for VC, especially pension funds across markets in the US, Europe and Asia.

Institutional differences between countries also affect the regional development of VC across countries. For example, Klagge and Martin (2004), Martin *et al*. (2002, 2005) and Sunley *et al*. (2005) point to the limited regional dispersion of VC firms in the UK compared with Germany, which reflect the spatial structure of the financial systems in the two countries and which also interact with differences in the institutional, regulatory and corporate environment between the two countries. They suggest that a regionally based critical mass of financial institutions, including regional stock exchanges, and agents increases spatial proximity between financial intermediaries and private firms, and provides a crystallization point for VC firms.

The view of the importance of stock markets has been challenged recently by Armour and Cumming (2004), who argue, in their study of 15 countries covering a 13-year period, that while a nation's level of entrepreneurial activity and idea generation are important determinants of VC development, the legal environment is as important as the stock market, that government involvement can hinder the growth of private equity and that temporate bankruptcy laws stimulate entrepreneurial demand for VC. They suggest that their evidence provides a strong case for legal reform. The findings of this study are potentially important for the application of legal institutional concepts to the development of VC markets because, in contrast to other studies, the above measures are directly of relevance to VC markets. Studies that have played down the role of legal factors have tended to draw on measures relating to public markets based on La Porta *et al*. (1997). Roe (2004) argues that studies that examine corporate law worldwide tend to over-predict its importance in the world's richest nations and tend to underestimate the importance of its enforcement in emerging markets.

Although these findings provide some extension of the application of institutional variables to the study of VC markets, they do not consider the potential implications of the wider institutional environment that includes cultural and social factors (Wright *et al*. 2003b). In their study of VC in India and Israel, Nye and Wasserman (1999) show that differing levels of political support, physical infrastructure and cultural learning have contributed to very different outcomes in these growing VC markets. There is also the need to understand the heterogeneity within apparently similar regions. Asia, for example, contains both developed and emerging countries as well as countries with English, Germanic and French-based systems of corporate law (La Porta *et al*. 1998). Bruton *et al*. (2005) argue that the nature of a country's institutional environment influences the development of its VC industry. Bruton *et al*. (2002) cite the case of Singapore, where the regulatory environment created by the government and its agencies has led to a greater emphasis on high technology start-ups than elsewhere in Asia.

Kenney *et al*. (2002a,b,c), examining the differential development of VC markets in Asia, note the importance of investment opportunities, exit possibilities, government initiatives (e.g. tax incentives), the development of a technological industrial base and socio-cultural factors supporting entrepreneurship. They also suggest that, across countries, VC industries may develop differently where varieties of VC firm with different objectives are dominant and where different financing instruments are available. For example, captive venture capitalists may be more interested in developing long-term relationships and investing in less risky later stage investments. Independent venture capitalists may be more interested in financial gains, corporate venture capitalists may be more interested in accessing new technology, and public sector VC firms may have social as well as technological objectives. Baygan and Freudenberg (2000), in the context of OECD countries, echo some of these points when they emphasize the importance of the barriers to entrepreneurship as a principal influence on the development of VC markets in particular countries. They also note the importance of a supply of capital willing to finance risky investment and the availability of a sufficient number of specialists with the necessary expertise to undertake VC investment. Extending this point, country differences within the European Union (EU) in the development of VC may be generated by individual government policies designed to stimulate regional clusters of high technology industry as well as policies directly aimed at stimulating regional VC (Martin *et al*. 2002).

Looking specifically at the later management buy-out end of the VC market, Wright *et al*. (1992) examine the factors influencing the differential development of management buy-out markets in Western Europe. They identify differences in source of transactions, infrastructure to complete transactions and the ability to exit transactions. Wright *et al*. (2004a) adapt this model to analyse the development of later stage private equity markets in the EU Accession States of Central and Eastern Europe. This model has also been adopted by Wright *et al*. (2003a) and Wright and Kitamura (2003) to examine the development of the management buy-out market in Japan, while Wright *et al*. (2005) compare developments in Europe and Japan.

Apart from the existence of laws, the enforcement of those laws is an important issue for financial investors. Legal enforcement is probably highest in the US, intermediary in Europe and erratic to non-existent in certain parts of Asia (Bruton *et al*. 2003). It is expected that law enforcement will affect the way VC firms behave. Indeed, Leeds and Sunderland (2003) comment that a major reason for the problems experienced by private equity funds that entered emerging markets in the 1990s was that the legal and regulatory framework did not provide adequate investor protection, and dramatic differences in accounting standards, corporate governance and exit potential created problems. Similarly, the closure of embryonic IPO markets in Europe that stimulated growth in VC led to a reversal of this trend (Megginson 2004).

The Development of International Venture Capital Industries

In comparison to the literature on macro-level cross-country comparisons, little research attention has been devoted to focusing on the international development of VC industries; there are, however, exceptions. Baygan and Freudenberg (2000) suggest that VC funds may allocate finance beyond national boundaries into countries where entrepreneurship, innovation, growth prospects and expected returns are highest. Government policies designed to foster the demand side, notably creativity and entrepreneurship, may be conducive to attracting foreign VC.

Kenney *et al*. (2002a,b,c) show that international VC grew initially through the internationalization of US VC firms, first to Europe and then to Asia, as these firms sought new investment opportunities (see also Gompers 2005). Interestingly, they note that these firms often resorted to private equity and expansion deals, as start-up opportunities were scarce. The internationalization of VC activity from Europe to the US came somewhat later, as VC firms began to appreciate the more flexible environment for high-tech investment in the US. They comment that few firms are truly global and that most VC firms operating internationally are multinational or transnational.

The development of internationalization of VC markets may be linked to limited domestic opportunities for VC firms, cultural links with neighbouring countries as well as the availability of investment executives with VC expertise and local country knowledge. For example, US-trained immigrants may return to their home country to establish foreign VC firms (Kenney *et al*. 2002a).

Internationalization into countries may be facilitated through the development of networks of contacts, for example through joint ventures with financial firms. Wright *et al*. (2003b) and Wright and Kitamura (2003) note in the context of the private equity market in Japan that a lack of access to networks can pose a major barrier to foreign firm entry.

Micro Analysis: Venture Capital Firm Behaviour Internationally

In this section, we focus on micro issues relating to the behaviour of venture capitalists internationally. First, we review the literature relating to cross-country comparisons of VC firms, which has been the dominant research focus at the micro level. Second, we review the literature on venture capitalists crossing-borders.

Cross-Country Comparisons

This section reviews cross-country variations in the nature of VC operations. For expositional purposes, we adopt the stages in the process of the VC life cycle from fund organization and the raising of funds through the various stages of the investment process (Gompers and Lerner 1999; Wright and Robbie 1998). Our analysis pays particular attention both to the theoretical perspectives adopted as well as empirical findings. Also, we focus on studies which have compared behaviour in different countries using common methodologies. We do not include studies of different individual countries, since methodological differences create problems of comparability.

Fund organization and fund raising. Venture capital firms can be organized in several ways which affect the nature of their fund raising and their investment behaviour, including the types of deals sought, the degree of their involvement in monitoring and value-adding activities and their investment time horizon. These different organizational forms include: independent limited partnerships established and managed by professional VC firms that act as general partners in managing the fund on behalf of the limited partners; captive funds that obtain their funding from a parent financial institution; corporate VC firms that are parts of trading corporations; semi-captive firms that obtain their finance partly from their parent and partly by raising closed end funds; and public sector funds.

Megginson (2004) shows that, in the US, VC firms primarily take the form of independent limited partnerships. In contrast, in Europe, VC funds have generally been organized more as investment companies according to various national laws or have been subsidiaries of larger financial groups. As a result, in the US, VC firms tend to obtain their funds from institutions such as pension funds whereas, in Europe, banks and other financial institutions are more important (Botazzi and Da Rin 2002). Karsai *et al*. (1998) show for the transition economies of Hungary, Poland and Slovakia how local legislation restricts the choice of organizational form for VC firms.

There is limited work involving cross-country studies of the issues involved in the different forms of VC firm in terms of fund raising and interacting with fund providers. US-based work on the contractual arrangements for limited partnerships (Gompers and Lerner 1996) and UK-based research on the monitoring of venture capitalists by their funds providers (Robbie *et al*. 1997) suggests some areas where comparative cross-country studies may be fruitful. In the sections that follow, we also comment on differences between different organizational forms of VC where studies have controlled for these differences.

Deal generation and screening. A number of studies have attempted to replicate US studies elsewhere and have then made cross-country comparisons to find significant differences in the emphasis placed on screening criteria between countries. Compared with venture capitalists in Europe, Canada and the Asia Pacific that base investment decisions on fewer screening criteria, those in the US rank nearly all screening criteria as 'considerably' important (Knight 1994; Ray and Turpin 1993). As Ray (1991) notes in replicating MacMillan *et al*.'s (1985) study and comparing the US with Singapore, investors' lack of experience and learning in the former set of countries leads to a narrower band of reasons for rejecting prospective portfolio clients. Another striking difference relates to the greater importance of significant market growth in the US (Knight 1994). In Asia Pacific, the tradition of opportunism and new business creation, as well as a need to compete internationally, place a substantially greater emphasis on whether the proposal creates a new market (Knight 1994; Ray 1991).

There are also differences in the relative importance of criteria across developed and emerging markets. Difficulties in assessing managerial capabilities, together with, for instance, short private-sector experience of entrepreneurs in transition economies, necessitate reliance on foreign business education or work exposure to Western business practices as alternative signals of managerial capability (Bliss 1999). In the Asia Pacific region, personality compatibility is significantly more important for venture capitalists than for those in the US, Europe and Canada (Knight 1994).

Later studies have begun to highlight the importance of institutional factors. The difficult institutional conditions of transition economies lead VC firms to place relatively greater emphasis on ownership stakes and mutual agreement about the legal structure of investments (Bliss 1999; Karsai *et al*. 1997). The nature of the capital market is significantly more important in the emerging markets of India and the Asia Pacific region (Knight 1994; Wright *et al*. 2002) than in more developed markets.

Information, valuation and structuring. Studies, which have generally been based on questionnaire surveys, show significant differences in the information sources, target rates of return and valuation methods adopted by VC firms when undertaking investment appraisals. Financial theory, resource-based theory (RBV) and institutional theory have been used to examine these issues.

Unlike the emphasis on outside specialists in developed markets, the absence of well-developed networks of intermediaries and consultants in emerging markets necessitates greater reliance on firms' own expertise for investment appraisal (Karsai *et al*. 1999; Ray 1991; Ray and Turpin 1993; Wright *et al*. 2000a). Compared with the UK and Continental Europe, VC industries in emerging markets are characterized by significantly greater emphasis on information relating to product, market and proposed exit timing and methods (Manigart *et al*. 1997, 1999; Karsai *et al*. 2000). Also predominant in Japan and Singapore are personal judgement and in-house specialists (Ray 1991; Ray and Turpin 1993).

Target rates of return also vary across markets (Manigart *et al.* 2002). Consistent with the RBV, Manigart *et al.* find that early-stage venture capitalists require a significantly higher return than other venture capitalists when investing in late stage ventures. Consistent with financial theory, they find that buy-out specialists require a significantly lower return than do other venture capitalists when investing in later stage companies. They find higher required returns are required by venture capitalists located in the US and UK compared with those located in France, Belgium and the Netherlands, which they infer is attributable to differences in institutional, legal and cultural contexts, specifically with respect to the relative development of capital markets requiring more frequent valuation of companies in the former two countries. They also find an important influence of the venture capitalists' organizational form in that independent venture capitalists seek significantly higher returns than captives or public sector venture capitalists. Unlike in developed markets, where target rates of return are typically based on the characteristics of a specific investment, there is a lack of a clear correspondence between return and investment stage (a proxy for risk) in transition economies (Karsai *et al.* 1999).

Financial theory has been used in conjunction with institutional theory to examine the methods of valuation adopted by venture capitalists in different markets (Lockett *et al.* 2002; Manigart *et al.* 2000; Wright *et al.* 2004b). Since VC executives in developed markets have greater expertise and skills to evaluate proposals, valuation practices are more sophisticated. Owing to developed capital markets, the valuation process also relies on standard corporate finance theory developed in an advanced capital market context. In contrast, in transition economies, the absence of well-developed capital and asset markets and concerns about the reliability of past trading records mean that venture capitalists attach noticeably greater importance to cash flow methods (Karsai *et al.* 1999; Wright and Robbie 1996).

In their nine-country study covering the US, Europe and Asia, Wright *et al.* (2004b) conclude that the legal system, and its implication for capital markets, may be more important in explaining the source of information used than it is for the valuation methods used. Cultural factors play an important role in the relative importance placed on information provided by entrepreneurs and in the business plan, and in the extent to which alternative external sources are sought. This suggests that information sources are not so easily transferred from one context to another. The actual sources of information that VC firms trust may vary both between and within legal systems and geographic regions. This study did not find that the organization form of VC was significantly related to valuation method used, although there was some weak association with the use of information from entrepreneurs and from business plans. These findings indicate that apparently similar systems and markets may in fact be heterogeneous. Further analysis might usefully explore the rationale for such differences in a more fine-grained way that takes account of different institutional contexts.

A parallel stream of research has made use of archival data, either through proprietary data sets or databases that have become publicly available. These data sources provide scope for more robust analyses to complement studies based on attitudinal questionnaire data. This research has focused on corporate and tax law environments to suggest that these may affect the financing structure in VC and buy-out investments. Such differences can affect the legal ability to use certain instruments as well as their efficacy from a tax point of view (Wright *et al.* 1992). For example, although convertible instruments are a key feature of the US and UK VC markets, where common law codes permit flexibility in the development of new financial instruments, this is not the case in civil code countries which may prohibit such instruments (Cumming and Flemming 2004). Tax benefits associated with convertible securities in the US and the coexistence of public and private VC in Canada and Continental Europe may explain differences in the use of convertible instruments (Cumming 2002). In the UK, the use of convertible preference shares has been replaced by convertible debt following changes to the taxation regime. For Germany, Bascha and Walz (2001) show that VC firms rarely employ convertible securities, which may in part be due to legal restrictions on conversion rights for certain legal forms under German corporate law. Lerner and Schoar (2003), in their study of VC in developing markets, conclude that differences in corporate and tax law affect transaction structure. Lerner and Schoar (2005) examine 210 private equity investments in developing countries and find that investments in high enforcement common law countries often use convertible preferred shares with covenants. In contrast, in low enforcement and civil law countries, private equity firms tend to use ordinary shares and debt and rely on equity and board control as a substitute for the lack of contractual protection.

At the same time, however, there exist some variations within emerging economies. In India, for example, there are restrictions on venture funds in the form of a low limit of the permissible debt–equity ratio. Leverage tends to be higher on average for ventures in the Philippines and Korea, and lower on average in China and Taiwan (Aylward 1998).

This research has been supported by questionnaire work that shows that Central and Eastern Europe (CEE) private equity investors employ similarly sophisticated financing instruments and contract provisions as investors in established markets, such as convertible securities and the stipulation of drag-along rights among other covenants, with the former exceeding the relevance of such instruments in Germany (Farag *et al.* 2004). These findings are consistent with theoretical considerations highlighting the importance of flexible financial contracting practices for negating the effects of information asymmetries, which may be more pronounced in CEE than in Western Europe. Furthermore, the elaborate use of advanced financial contracting schemes underscores the development of investment skills by CEE private equity investors and may reflect the ease of transfer of general professional skills and mechanisms to new markets (Wright *et al.* 2002).

For later stage investments, the relative availability of different forms of debt may also differentiate financing structures between countries; for example, in CEE, the underdeveloped banking system meant that long-term debt did not become available in significant amounts until well after 2000 (Wright *et al.* 2004a). The ability to enforce legal contracts may also affect the nature of the financing structure, with VC firms likely to seek majority equity stakes in emerging markets where the rights of minority shareholders are weak (Karsai *et al.* 1998).

Post-investment activities. Building on an Anglo-American perspective, agency theory is the most commonly used theoretical lens through which to examine differences in monitoring across countries. To some extent, the monitoring behaviour of venture capitalists represents this normative institutional perspective whereby incumbent firms follow professional norms. For example, a seat on the boards of investee companies or the right to appoint a director at a later stage and right of access to information are present in both the established UK market and the relatively new markets of Singapore and India (Pruthi *et al.* 2003; Ray 1991). As Bruton *et al.* (2005) explain, whereas the interactions and roles of new entrants to an industry are initially determined by economic efficiency concerns, later entrants respond more to isomorphic forces, tending to follow commonly held beliefs and replicating the conduct of the originators.

Sapienza *et al.* (1996) adopt a mixed theoretical approach that extends an agency perspective to include business risk and information processing theories. They examine the antecedents to venture capitalists' monitoring and find that venture capitalists in the US and UK expend more effort in value-adding activities than those in the Netherlands, although the importance accorded to the various VC monitoring and added value roles were consistent in each country. The fact that their results best predicted the behaviour of venture capitalists in the US, where the theories they use were largely developed, supports the view that theories are culturally bound.

Adopting an institutional cultural perspective helps understand the existence of differences between developed and emerging markets in respect of monitoring mechanisms and post-investment service provision. Asian boards of venture-backed firms are significantly larger than European boards, while the number of insiders on Asian boards is also greater than those in the US or Europe (Bruton *et al*. 2005). Unlike in the West, CEOs of VC-funded firms in Asia are not removed as frequently (Bruton *et al*. 2003). This is because VC in the US is structured in order to maximize returns to VC firms, to minimize agency risk, and to maximize efficiency in the operation of the VC firm itself. Implicit in these rationales is the belief that VC firms and their entrepreneurial investment firms are two totally separate and independent entities. The relationship between the venture capitalist and the entrepreneur in Asia, on the other hand, is that of a collective entity. There is less need, therefore, to control agency risk. Whereas in the West, the focus of the board is on efficient decision-making by those who have control of the firm, Asian firms emphasize the effort to build relationships among the officers of the firm and outside stakeholders. Hence, as a result of the greater emphasis on the group rather than on individuals, agency concerns, such as exist especially in the US, are not perceived as present in Asia (Hofstede and Bond 1988). Differences in behaviour from the US are also evident in CEE. Evidence from Hungary, Poland and Slovakia for instance, suggests considerable emphasis on keeping the position under review and on requesting more in-depth information rather than taking precipitous action (Wright *et al*. 1999).

Comparisons of the services provided by venture capitalists in the US and in emerging markets suggest that the former are more involved in serving as a sounding board to the entrepreneurial team and in financially oriented activities (Macmillan *et al*. 1985), while the latter place more emphasis on making introductions to potential customers and suppliers, and assisting with marketing plans is relatively more important (Pruthi *et al*. 2003). This is because, relative to developed markets, marketing problems coupled with the inability of investors to compete effectively are rated very highly in emerging markets (Gorman and Sahlman 1989; Wright *et al*. 1999). Again, this stresses the importance of institutional differences between countries.

Investment realization. The feasibility of different exit routes may vary between legal systems, most obviously with respect to the availability of stock markets. Adopting a capital markets theory perspective, Black and Gilson (1998) argue that the highest return exits in developed VC markets are realized through IPOs (Black and Gilson 1998). This is because investors in these markets possess the international resources to take successful investments to a public listing (Murray 1994). Moreover, as La Porta *et al*. (1997) indicate, in comparison with civil law countries, common law countries have broader and higher valued capital markets. Better quality of the legal environment in terms of strong shareholder rights or legal protection of investors against expropriation by entrepreneurs permits easier access to capital markets and flow of new companies obtaining equity finance (Black and Gilson 1998; Wright *et al*. 1992).

Venture capital firms in emerging VC markets, on the one hand, have very little experience with the process of taking firms public (Ray 1991). Although the development of a second tier stock market is likely to enable many growth-oriented companies at anticipating exits through IPOs, entrepreneurs in Singapore, for instance, unlike their counterparts in developed markets, are not very comfortable with liquidating their investments completely. Venture capital firms in transition economies such as Hungary, on the other hand, aim to float their ventures in more developed foreign markets (Karsai *et al.* 1997). Except in the context of the privatization process, IPOs and capital increases through the stock market remain very rare (EBRD 1998). This is because, despite improvements in the regulatory and institutional framework, the non-bank sector remains underdeveloped and market capitalization on stock exchanges is relatively low.

Sales to strategic partners are typically the most common form of exit, yet a number of issues are raised about this option in different contexts. Not only do acquisitions markets vary in terms of their stage of development, but there may be different attitudes with respect to the sale of majority versus minority stakes, and different regulations regarding sales to foreigners, etc. Cumming and Fleming (2004) adopt a legal system perspective and show that, for the Asia-Pacific region, a high legality index is associated with a greater likelihood of exit through IPO or trade sale but that a high legality index is neither necessary nor sufficient for the development of a successful VC market.

Wright *et al.* (1993) adopt a broad contingency perspective to explain the influences on exits in the buy-out segment of the VC market in four European countries. This perspective incorporates a range of institutional factors, including the state of development of asset and stock markets, legal infrastructures affecting the nature of VC firms' structures and the differing roles and objectives of management and venture capitalists.

Crossing Borders

Research focusing on issues relating to the internationalization of VC firms is the most underdeveloped of the areas we consider. This underdevelopment is surprising, given the extent of cross-border investment activity by venture capitalists noted earlier in this paper. In this section, and consistent with the previous section, we summarize the limited work on international investment behaviour by venture capitalists following the stages in the process of the VC life cycle. Internationalization is defined as both the raising of funds by VC firms from outside the markets in which they are headquartered and their investment into portfolio companies outside the market in which they are headquartered through a variety of entry modes, including direct arms' length investment and a physical presence.

Fund organization, motivations and strategies. Analysis of the internationalization strategies of VC firms has used a mix of aggregate archival data and case studies. With respect to location choice, Hall and Tu (2003) suggest that the willingness of VC firms to invest overseas is positively related to the size of the VC firm and the investment stage of their investees, and negatively to the age of the VC firm. Interestingly, this study finds that internationalization is not related to the type of VC firm ownership.

A large-scale study of internationalization by US VC firms by Guler and Guillen (2004) suggests that, rather than environmental uncertainty, the decision to invest internationally is driven by the availability of innovative investment opportunities ideas that are perceived to offer the opportunity to earn superior returns.

Cultural differences and geographical distance may create problems in cross-border VC investments (Meyer and Shao 1995). Venture capitalists may attempt to replicate their domestic mode of operation when entering foreign markets or may adapt to local environmental conditions, producing isomorphism among firms. Foreign entrants may, however, retain some distinctiveness as they attempt to compete on the basis of some aspect of differentiation. This proposition is informed by institutional theory, which asserts that organizations seek to adopt strategies, structures and processes that reflect the institutional environment through isomorphic adaptation (Zalan 2004). Zhang (2002) noted that, for foreign investors to address the high risks of investing in China, they need to adapt to local market conditions. In a recent study of VC firms in East Asia, Bruton *et al*. (2005) contend that institutional features such as ownership structure, family control and codes of corporate governance influence the differences between Western and East Asian VC firms' investment behaviour.

Based on case studies of US private equity firms, Dixit and Jayaraman (2001) suggest three models of internationalization. These are identified as a specialized fund model, whereby funds are specialized by stage of investment and geographical region, the organic growth model, based on an integrated approach that involves the transfer of expertise from the domestic market, and the affiliate model, based on co-investment with a local domestic partner.

Evidence from a representative survey of 37 UK venture capitalists that had internationalized shows that arm's length investing (25 firms) appears to be the most popular means of foreign market entry, followed by the establishment of branch offices (21 firms) (Pruthi 2004). There were few instances of firms entering through acquiring stakes in existing funds in the concerned markets (three firms) or of joint ventures/alliances, acquisitions (two cases of each) or licensing, and franchising was reported only once. These findings indicate that venture capitalists may engage in more than one form of market presence.

This survey also showed that UK venture capitalists that internationalized adopt both formal and informal controls for controlling and co-ordinating their foreign operations but that informal controls were, on an average, rated more highly (Pruthi 2004). Among formal controls, 'direct reporting by investment executives in foreign operation …' was rated most highly (mean score 5.5 on a 7 point scale, where 7 = very important; SD 1.5), followed by 'investment committee membership …' (mean 5.1; SD 1.6) and 'highly standardized and formal reporting systems' (mean 4.9; SD 1.5), respectively. Among informal controls, 'regular telephone/e-mail contact' (mean 6.4; SD 0.7) received the highest rating followed by 'regular group meetings' (mean 5.9; SD 1.0) and 'frequent overseas trips and visits …' (mean 5.9; SD 0.9), respectively.

An important aspect of the strategy and organization of venture capitalists entering foreign markets concerns the skills of executives operating in that market. Beaverstock (2004) shows that legal firms expatriate staff to their international offices but, simultaneously, employ the services of 'local' staff to practise local jurisdiction law. However, the nature of expatriation varies according to international region. In east Asia, expatriation followed a 'Multinational' typology, characterized by one-way knowledge diffusion from London with expatriates managing overseas offices. In contrast, expatriation in Europe and North America reflected a 'Transnational' typology, where knowledge was developed and diffused in a network of relationships in which expatriates worked with locally qualified partners and lawyers, and expatriates of other nationalities, in an environment where locals, expatriates of other nationalities and British qualified staff managed offices. Leeds and Sunderland (2003) provide anecdotal evidence on the need for locally based VC personnel who are culturally attuned. Evidence from foreign venture capitalists in India suggests that about a third of executives have VC experience outside the country and that 91% are Indian nationals (Wright *et al*. 2002). Further research is required to examine whether the different patterns identified in respect of legal firms also hold for venture capitalists.

Deal generation and screening. For venture capitalists to invest cross-border, there need to be opportunities for investment in local entrepreneurs. However, cross-border investment poses particular challenges for identifying deals. Different entry modes suggest different approaches to deal generation and screening and possibly different types of deal. For example, a physical presence in a country may provide greater integration into local networks of entrepreneurs and intermediaries necessary to access early stage deals. In contrast, arms' length investment from the venture capitalist's home base may be more feasible for investments such as divestments of divisions by multinational firms.

The presence of local VC investors with whom to partner in a syndicate may play an important role in taking on certain responsibilities that may be easier to manage from a domestic position (Mäkelä and Maula 2005; Maula and Mäkelä 2003). These local investors need to have extensive international social capital, that is, networks with foreign VC firms. They are attractive to foreign investors, because they have information about the operation of the local market, including access to deal flow as well as dense networks of contacts and familiarity with different legal requirements. Local investors can play a certification role regarding potential investees for incoming investors, that is identify attractive deals and, by being in close proximity, may be more able to provide monitoring and value-adding activities than is possible for a distant foreign investor, although this need may be reduced if the entrepreneurial firm already has expertise and where the venture's markets are largely international.

Information, valuation and structuring. Wright *et al.* (2002) examine internationalization issues in the Indian VC market with respect to information and valuation. Adopting a mixed internationalization and institutional approach, they compare the behaviour of foreign (mainly US) and domestic VC firms in India and VC firms in the US. They find more significant differences between foreign venture capitalists in India and US VC firms than between Indian foreign and domestic VC firms, suggesting adaptation by foreign VC firms as they enter overseas markets.

The financing instruments used by VC firms when they make cross-border investments may vary. Cumming (2002) finds that US VC firms investing domestically made extensive use of convertible preferred equity but, when they invested in Canadian-based ventures, they used a wider variety of financial instruments. Cumming attributes this difference in behaviour to institutional differences between countries, such as differences in attractiveness of certain instruments for purposes of taxation relief. The different financial structuring behaviour of VC firms when they invest cross-border is an area for further research, especially with respect to differences between common law and civil code institutional regimes that permit or restrict the use of particular instruments.

Post-investment activities. Pruthi *et al.* (2003) adopt a mixed agency and institutional perspective to examine the monitoring and value-adding approaches adopted by foreign and domestic firms in India. They find that foreign venture capitalists were more likely to be involved in investees at the strategic level, while domestic venture capitalists were more likely to be active at the operational level. This finding is consistent with the arguments of Maula and Mäkelä (2003). However, the organization form of the VC did not have a significant effect (Pruthi *et al.* 2003).

Hurry *et al.* (1992) examine the monitoring behaviour of Japanese VC firms in the US. They show that US VC firms are more likely to have greater incentives and ability to monitor investees than Japanese VC firms as they tend to make fewer investments and take larger equity stakes. These differences, they suggest, were largely attributable to the different rationales for VC investment by the firms from the two countries, the former seeing investments in terms of projects that will earn returns, while the latter view investments as options to be taken up when the investor is ready.

With respect to value-adding behaviour, Maula and Mäkelä (2003) in their examination of VC portfolio firms observe that foreign investors significantly aid the internationalization of their portfolio companies by helping them develop a global perspective to their business. Their networks expose internationalizing firms to opportunities, learning and benefits from the pooling of resources. Value-added contributions in foreign markets pertain to establishing foreign offices, recruiting new people, attracting foreign customers, opening doors to business partners, conveying knowledge of the legal environment, enhancing credibility and providing contacts to financiers.

The presence of foreign investors in a syndicate of venture capitalists can affect their commitment to a venture when it experiences problems. In their detailed case study approach in Finland, Mäkelä and Maula (2005) propose that cross-border investors are likely to react more strongly to changes in expectations the more distant they were. However, they were more likely to show continued commitment, despite declining expectations from an investee if they are more embedded in the focal country through other investments or co-investments with the same investors. This also raises issues concerning reputation risk if the foreign venture capitalist were to withdraw from one investment. Several factors such as geographic and cultural distance, dependence of the foreign investor on investors and entrepreneurs in the key locations of the venture, and financial relevance of the venture seem to affect the commitment of venture capitalists in foreign markets (Maula and Mäkelä 2003).

Investment realization. Cross-border involvement by VC firms can also influence exit behaviour. Using a large sample of European VC-backed ventures and their exits, Jääskeläinen and Maula (2005) suggest that the presence of foreign venture capitalists reduces the informational problems related to the arrangement of exits through IPOs and trade sales in foreign markets, thus increasing the likelihood of such exits. The social capital and existing contacts of foreign venture capitalists increase the diffusion of information among potential investors, thus enabling identification of potential exit opportunities. In addition to these direct ties, indirect ties through international syndication by domestic VC firms also increase the propensity for foreign exits. The presence of foreign investors also signals the quality and legitimacy of the venture.

Discussion

Below, we identify a number of research gaps and limitations in previous research and suggest areas for further research.

Macro Analysis

There is a growing body of work examining the factors influencing the development of VC markets internationally. Our review of the literature highlights theoretical and methodological issues for the future of research into the area and research opportunities.

First, in terms of theory, too much emphasis to date has been placed on the role of stock markets. This is particularly the case with studies that focus on cross-country comparisons of VC industries. Our review of the literature highlights the need to consider specific legal environments that influence VC rather than law relating just to public companies. An under-researched area in the context of international comparisons concerns the influence of wider environmental factors that include social networks and cultures.

Second, in terms of method, much of the analysis to date has, with the main exception of Armour and Cumming (2004), been static in nature. As with the issue of theory, this is particularly the case with studies that focus on cross-country comparisons of VC industries. Research in this area has used a variety of approaches from qualitative analyses based on interview (e.g. Bruton *et al.* 2003) and archival data (e.g. Black and Gilson 1998) to quantitative analyses using cross-sectional and longitudinal techniques (e.g. Armour and Cumming 2004; Jeng and Wells 2000). While qualitative analyses were appropriate to explore the conceptual issues underlying market development, further research now needs to adopt longitudinal data analysis techniques to examine the changing patterns of development across VC markets. For example, the emergence of previously underdeveloped VC and private equity markets (Lockett and Wright 2002) creates a need for analysis of the dynamic aspects of the institutional context that may be contributing to these changes. For example, how do VC markets respond to changes in institutional factors? This research could be undertaken using time series analysis with data on the trends in VC markets taken from VC association directories and changes in the kind of variables used in the studies reviewed here.

Third, the dominant focus of research at the macro-level has been on comparing VC industries across countries. As such, opportunities exist for scholars to produce research that is focused on the relatively neglected issue of the development of international VC industries, i.e. VC crossing country borders. We consider, however, that the relative lack of research into the process of the international development of VC industries may well reflect the methodological difficulties associated with trying to perform longitudinal research. There is also a lack of analysis of the relative importance of supply- and demand-side aspects of the international development of VC. While there is an increasing supply of VC funds, VC will only flow to a country if there are thought to be good investment opportunities. Further research needs to address the question: what are the demand pull factors in different international contexts and how can these be matched with the supply of VC? Such work could be undertaken using archival data relating to changes in the structure of industry, the development of entrepreneurship, regulatory changes, etc. as well as through surveys of entrepreneurs who may be seeking to grow their business and/or to internationalize and who require finance to realize these goals.

Fourth, there is a need for longitudinal analysis to examine the research questions: why and to what extent are the factors driving the development of different markets and the shift from national to international markets in terms of cross-border inflows and outflows of funds changing? Such research will enable a clearer perspective on the extent to which the VC market is becoming a series of developed national markets or a global one to be obtained.

Micro Cross-Country Comparisons

The body of work dealing with cross-country comparisons in the behaviour of venture capitalists is now adopting a more conceptually based approach than earlier studies. There is some recognition of the limitations in the generalisability of agency and financial theory approaches to different contexts with the development of an appreciation of institutional contexts. This appears to be particularly the case in respect of research on information and valuation as well as that relating to post-investment activities. Research that explicitly develops an institutional perspective, however, remains limited. With regard to cross-country comparisons, we suggest that there is an important need to develop an institutional perspective to understanding both the development of VC markets and differences in the behaviour of venture capitalists across markets.

Although some progress has been made in this area, an important issue to emerge is the requirement to consider a broad interpretation of institutional aspects that include financial and legal dimensions that were specific to VC markets as well as social and cultural factors. As with research examining the development of VC markets, the focus on different legal systems as the main institutional influence addresses only a limited aspect of the institutional environment. There is, therefore, a need for further research that takes a more explicit account of cultural and social network aspects of different institutional environments and which may affect the behaviour of VC firms. In particular, while networks are an important aspect of VC operations, and there is extensive examination of the role of networks in the entrepreneurship and single country VC literature, in our view insufficient analysis has been undertaken in terms of their differences between countries. While networks are generally seen to be stronger in much of Europe compared with the US, the emphasis in Asian culture on networks (Boisot and Child 1996; Orru *et al*. 1997) may even be much stronger (Tsang and Walls 1998). For example, the importance of social and particularly family networks in East Asian businesses (Claessens *et al.* 2000) means that connections and relationships with potential clients are likely to be far more important than in the West. These relationships may have implications for venture capitalists: for example, in terms of sourcing deals, the substitution of implicit relationships for explicit contracts (Allen and Song 2002), and the monitoring of investees where boards of directors are dominated by extended family members. These dimensions raise interesting research questions. How does venture capitalists' use of networks to identify the demand for VC from potential deals differ between different institutional contexts? What is the nature of the trade-offs venture capitalists make between, for example, the skills of management and market factors in screening deals in different institutional contexts? Given that there may be important heterogeneity in the culture and institutional environment among apparently similar geographic regions, this research may need to be fine-grained in terms of identifying differences in the nature of networks within geographic regions (e.g. within South and East Asia) and between regions (e.g. between Europe and South and East Asia). Bruton *et al.* (2005), for example, discuss the different dimensions of institutions and cultures that might provide a useful basis for operationalizing such work.

A further dimension concerns examination of deal screening criteria. Studies have begun to recognize the importance that venture capitalists place on trade-offs between different criteria. Cross-country studies, however, have paid little direct attention to how these trade-offs may differ in different contexts, yet differences in the institutional environment, including entrepreneurial expertise, organizational resources and the nature of products and product markets suggest that they may well be important. A major research question, therefore, concerns how do the trade-offs that venture capitalists make between deal screening criteria differ between countries? Established techniques of conjoint analysis can be used to undertake such analyses (Muzyka *et al.* 1996).

Cross-country archival research is beginning to appear that compares VC contracting in different legal system contexts (Kaplan *et al.* 2005), providing a valuable advancement on self-report questionnaire studies. However, work has been limited by access to records of certain funds. Further research is needed to answer the question to what extent does contracting differ between different types of VC firms in different country contexts. There is also a need to understand more about cross-country differences in how these contracts are actually used in monitoring investees. Do venture capitalists in some countries place more reliance on contracts for monitoring or do relationships play a greater role? Do these differences relate to differences between Anglo-American and network-type countries or are they related to different types of VC firm irrespective of country context? Much work on VC monitoring has been based on questionnaire surveys. The private nature of VC and hence limited disclosure makes for difficulties in using archival studies on this aspect. As the general corporate governance area has recognized different governance mechanisms and processes between countries, there is a need to address the research question as to what extent do monitoring methods by venture capitalists differ between countries or whether professional norms transcend country differences. There is a need to construct proprietorial data sets based on venture capitalists' records that address this issue.

Methodologically, work relating to cross-country comparison concerns has traditionally been based on mail questionnaire data with limited use made of archival data. For some countries, it is possible to obtain high response rates and representative samples, but this can be problematical in some regions, such as CEE and parts of Asia. In some countries, it may be necessary to adopt different data-gathering approaches, such as face-to-face interviews, where mail questionnaires are less feasible either owing to problems with the mail system or because respondents are resistant to them. There is also a need to address problems relating to comprehension of questions across different contexts and simultaneity of timing of administration of questionnaires. The small number of VC firms in many emerging markets also limits the use of multivariate analysis techniques unless multiple countries are considered. The private nature of VC markets means that publicly available archival data sources are limited, especially across countries and in emerging markets in particular. This can pose problems in obtaining data such as financing structures, VC board membership, investment realization patterns, etc. Cross-country studies of exits of venture-backed investments through IPOs may be more practicable because of the availability of flotation prospectuses. US VC researchers have obtained access to proprietary and on-line databases such as Venture Economics and Venture One. The extension of these databases compiled by specialist information providers such as Initiative Europe and Thomson may, over time, provide access to appropriate archival data in Europe and elsewhere. However, as these databases are not typically designed for academic research purposes, there may be a need to supplement them with data from other sources. Relatedly, commercial databases may also be compiled with an emphasis on timeliness, which may mean that they are not compiled to the standards of academic inquiry. Differential reporting of data between countries may also mean that care needs to be taken in simply drawing data from these sources without some cross-checking, for example that the size and stage scope of VC firms covered is the same for each country.

Cross-country comparison studies have largely used common research instruments developed in one country initially and adapted where appropriate to different country contexts or have used comparative archival data. Some studies have involved a replication of US studies followed by an aggregate level comparison of findings with US studies, which precludes rigorous statistical testing. As highlighted above, a criticism of these studies is that they have not always undertaken data collection in the different countries covered contemporaneously. This may lead to potential issues of comparability if institutional environments change over time. However, offsetting this issue, these different points of real time provide for some reduction in the gap between the stage of development of each market. Different data collection methods may also be necessary where countries vary in their acceptability or feasibility of particular approaches.

A further methodological issue is that cross-country studies have typically drawn their samples from the local VC association membership. Outside North America, in particular, this membership is likely to include both classic VC providers as well as private equity providers. Interestingly, where studies have introduced control variables in multiple regressions for early versus late or MBO stage investments, the coefficients on these dummy variables has generally been insignificant (e.g. Manigart *et al*. 2002; Wright *et al*. 2002, 2004b). Nonetheless, research questions focusing on cross-country comparisons of VC behaviour may need to be more precise in relation to the particular types of activity they are addressing: for example, investment stages. Researchers may then need to select carefully from national VC association directories only those venture capitalists that relate to the focus of attention in a particular study.

Many studies have been cross-sectional in nature and therefore fail to capture the dynamic nature of VC markets and emerging VC markets in particular. There is a need for more longitudinal (i.e. repeat) survey data that identify the changing behaviour across markets. There are some indications from different authors that have examined the same phenomenon at different points in time that this is an important area. For example, Farag *et al*. (2004) find in their study of VC in CEE in 2002 that, in contrast to earlier work by Bliss (1999), venture capitalists no longer adopted a very informal approach to investing. Further research might usefully consider whether screening, information usage, valuation, monitoring and investment realization behaviour converge to developed market norms as VC markets develop or whether it is restricted by institutional inertia. Such work could be undertaken by using questionnaire instruments that have been used in developed market contexts and adapted for use in developing or emerging markets.

Micro-level Crossing Borders

It is evident from our review that further research is required to examine internationalization behaviour by venture capitalists. Also, further aspects of the life cycle of venture capitalists' international investment activities need to be analysed. In addition, there is a need to examine whether, as in the manufacturing sector, this behaviour varies both according to the country of origin of the VC and the country into which they enter.

An important area for further research concerns the international structure of VC firms. While some may be multinational and some transnational, there is a lack of systematic evidence on the predominant organizational character. Further research needs to develop a taxonomy of how different modes relate to different types of VC firms based on different investment objectives, resources, goals etc. Additional analysis might also examine how these modes are changing over time, and what factors are influencing these changes. Relatedly, there is limited research on the behaviour of different organizational forms of VC in terms of their international raising of funds and their cross-border investment behaviour and whether this behaviour varies between countries. Since there are important differences between the organizational form of VC firms between countries (Megginson 2004), further research in this area seems warranted. For example, how and why does the international structure differ between independent, captive and corporate venture capitalists? Are captive venture capitalists that are part of a multinational or global network of offices developed by their parents more likely to adopt this form of internationalization? Are independent venture capitalists more likely to adopt a transnational form because of the costs involved in establishing offices? Do any differences between captive and independent venture capitalists reflect differences in the size and stages of deals being considered? Do captive venture capitalists that internationalize do so in a way that is constrained by or mimics the internationalization structure of their parent, or do they have the discretion to pursue their own structure?

In the light of the paucity of research on internationalization by venture capitalists, an important issue concerns the development of appropriate conceptual frameworks for analyzing the internationalization behaviour of venture capitalists. Some appropriate frameworks for researching the internationalization of venture capitalists can be considered, and research into the internationalization of other professional services firms (e.g. lawyers) may provide additional insights. We suggest that there is potential to synthesize core elements of the international business (IB) literature with that relating specifically to venture capitalists. In particular, we consider that there is scope for further application of TCE and especially the RBV framework to the VC context to help researchers to understand better the nature and extent of international diversity, entry mode and co-ordination and control of foreign operations by venture capitalists. Further, core themes of the RBV, which include path dependency, and the changing nature of a firm's resource base over time, can facilitate a better understanding of the dynamics of venture capitalists' internationalization behaviour. We elaborate in what follows.

Traditionally, the dominant framework in the study of the internationalization of firms has been the stages model. In the stage model, firms initiate market entry through exports via independent representatives, and then by the establishment of an overseas sales subsidiary

(Johanson and Vahlne 1977, 1990; Johanson and Wiedersheim-Paul 1990). Overseas production/manufacturing units are established last in order. This model, however, has been challenged in both the IB and entrepreneurship literature, since an important group of firms internationalize at an early stage in their development (Alavarez-Gil *et al*. 2003; Autio *et al*. 2000; Delios and Henisz 2003; Oviatt and McDougall 1994; Zahra *et al*. 2000). The model provides a framework to consider whether venture capitalists adapt their approaches to internationalization as they gain more expertise but has shortcomings. Where production cannot be separated from consumption, as in many services, and FDI and licensing are the only available options, the increased resource commitment involved in adopting these modes may slow down the process of internationalization (Buckley *et al*. 1992; Cardone-Riportella and Cazorla-Papis 2001; Erramilli 1991). At the same time, however, where there is high interaction between producer and consumer during service delivery, incremental internationalization in business and financial services is problematic.

The transaction cost economics (TCE) perspective on internationalization focuses on efficient organizational design. The resource-based view (RBV) is a complementary theory to TCE for investigating issues relating to the internationalization of VC (Madhok 2002). Whereas the focus of strategy under TCE is efficient organizational design, the focus of strategy under the RBV is the generation and deployment of firm-specific resources in order to create value. As such, the RBV has become the dominant approach to investigating inter-firm differences in strategic management (Barney *et al*. 2001; Hoskisson *et al*. 1999).

The RBV, both in its equilibrium and dynamic conceptualizations (Lockett and Thompson 2001), has attractions for understanding the internationalization behaviour of venture capitalists. From an equilibrium perspective, the RBV emphasizes the idea that resource superiority is critical to overcoming the inherent costs faced by firms when they internationalize (Rugman and Verbeke 2002). Second, success in international markets cannot be realized if the assets firms possess are not ‘specific’, that is, are widely available and can be disseminated at no cost (Combs and Ketchen 1999). Third, the RBV focuses on the role of resource availability in influencing the diversity of markets and the form in which firms conduct international business. From a dynamic perspective, the RBV emphasizes the path-dependent processes of foreign knowledge absorption and diffusion throughout internationalizing firms. Here, the focus is on disequilibria, continuous resource recombinations and responses to requirements for realignment with the different environments faced by firms that internationalize (Teece *et al*. 1997). The following sub-sections reflect on issues relating to the internationalization of venture capitalists employing insights from both TCE and RBV as well as research on other types of professional service firm.

Nature of international diversity. Venture capitalists that possess more internationally experienced personnel (or human resources) may be better equipped to cope with uncertainty and contemplate entry into new markets (Johanson and Vahlne 1977). As venture capitalists need to maintain direct management contact in the conduct of their post-investment activities, whether monitoring investees or providing value-added services, the need to maintain direct contact suggests entry to markets in close geographic proximity.

Evidence suggests that service firms (Westhead *et al*. 2001), and consulting firms in particular, may not undertake systematic analysis of the international markets into which they will enter (O’Farrell and Wood 1998; O’Farrell *et al*. 1995). Rather, their choice of market may be constrained by their relationships with clients or strategic partners, perhaps being pulled abroad as a result of these associations. We argue, however, that venture capitalists may differ from these professional service firms in that, while they may be called up to advise existing portfolio firms to help them to internationalize, the central part of venture capitalists' internationalization is to identify opportunities to make investments in new portfolio companies. This suggests a different role for networks and social capital. Venture capitalists that are rich in terms of resources of internationally experienced personnel may also be more likely to possess the diverse networks necessary for successful entry into different markets (O'Farrell and Wood 1994). They may, therefore, be more likely to enter into markets with long-established relationships, even if more distant and different from those initially contemplated for entry (Erramilli 1991). An important research question is, therefore, how and why do the networks and social capital of VC firms differ from those of other professional service firms? Directories of venture capitalists and professional service firms are available internationally to identify populations on which to base such studies.

As highlighted in the macro-analysis section, cross-country differences in the nature and effectiveness of judicially enforced laws and government-enforced regulations (La Porta *et al.* 1998, 2000) as well as other institutional factors, affect patterns of ownership and control, the development of financial markets and the valuation of corporate assets. An important research question, therefore, is whether venture capitalists with greater capabilities in the processing and assessment of information relating to environmental conditions are better placed to enter diverse markets than their counterparts?

Entry mode. Exporting (indirect or direct through agents/distributors or sales subsidiaries/branches), contracting (licensing and franchising, technical agreements, service/management contracts and co-production agreements) and FDI (joint ventures (majority/50–50/minority) and sole ventures with full ownership and control (new or acquired branch offices, wholly owned subsidiaries and acquisitions)) represent the three generic methods of penetrating foreign markets (Buckley and Casson 1998; Buckley and Ghauri 1993; Root 1994).

From a TCE perspective, entry mode choice is viewed as a trade-off between control and the cost of resource commitments, under conditions of risk and uncertainty (Anderson and Gatignon 1986; Buckley and Casson 1998). Internationalizing firms select the entry mode that maximizes long-run efficiency, and a distinction is made either between a non-integrated and a fully integrated entry mode dichotomy in classifying entry modes (Anderson and Gatignon 1986) or a more fine-grained approach, depending on different levels of ownership and control (e.g. Delios and Henisz 2000). Brouthers and Brouthers (2003) emphasize that, for service firms, the transactions cost economics approach suggests that the mode of entry will be driven by people-oriented measures of uncertainty, that is asset specificity, behavioural uncertainty and trust propensity. Service firms making high asset specificity investments and investing in uncertain environments are likely to prefer wholly owned modes of entry.

The transaction cost approach to entry mode determination has been criticized on the grounds that many firms do not proactively choose their mode of entry into international markets either because they lack the resources or are drawn into internationalization through their links with trading partners (O'Farrell and Wood 1998; Westhead *et al.* 2001). Furthermore, we argue that the TCE approach may also be limited in its applicability to knowledge-intensive sectors such as VC. In these sectors, competitive advantage may be achieved by exploiting and augmenting the firm's knowledge as a key resource (Erramilli 1991; Erramilli and Rao 1993). Using a resource-based perspective on entry modes by venture capitalists enables the analysis of research questions such as: are venture capitalists that attract more financial resources from their investors better able to establish a physical presence through offices, for instance, in foreign markets? Similarly, compared with their counterparts that are constrained in terms of financial resources, are those venture capitalists that are larger in fund size able to acquire other firms and hence enter foreign markets through acquisitions?

Also, venture capitalists with less human capital in the form of fewer internationally experienced executives may require more time to learn new roles and compete with existing firms and well-established investee groups in foreign markets (Buckley *et al*. 1992). This raises the following research question. Do lower human capital resources deter ownership-based entry, leading VC firms into investing in foreign markets at arm's length, without physically establishing themselves there? Firms with more experienced executives may have greater confidence to gauge investee needs, estimate costs and returns, and assess the true economic worth of foreign markets (Erramilli 1991; Hill *et al*. 1990; O' Farrell and Wood 1994). Hence, are venture capitalists with more experienced executives more likely to commit larger resources to foreign market entry and establish themselves through some form of physical presence?

In addition to resources being firm-specific, resources may be specific to an industry and/or specific to a location. Industry-specific resources, however, are not necessarily location-specific, it may be possible to transfer them to different countries. For example, certain professional services relating to computing, engineering and consulting may require proprietary knowledge that varies little with location. Some VC firms may compete on the basis of their specialist technological knowledge and therefore be less constrained by location-specific knowledge and resources. This raises the research question: do firms that compete on this basis carry out cross-border activities at arms' length as their need to access local knowledge is relatively low? Does this differ as between later rather than earlier stage deals? More specifically in relation to the behaviour of venture capitalists, further research is required to examine the deal generation activities involved in these approaches. For example, to what extent do the arm's length versus physical location entry modes involve different types of deal generation?

In contrast, in some professional services industries there may be a need to access local knowledge. For example, lawyers and accountants operating in different countries are likely to need to acquire knowledge about local regulations and reporting mechanisms and therefore need to adapt to local conditions (O'Farrell and Wood 1998). Some VC firms may need to gauge local conditions about the regulatory environment and link into networks to access entrepreneurs involved in early stage ventures. In this case, do VC firms adopt a high resource access entry mode involving a local physical presence or some link with local VC firms that do have this knowledge? Chen *et al*. (2004) find that Taiwanese VC firms entering the Chinese market join forces with foreign venture capitalists who have the resources and expertise. There is limited work on this aspect, and more is required in different contexts. Studies of internationalization by professional service firms have developed methods and instruments to address these issues in that context, and these may be adapted to examine the VC context.

Finally, the choice of entry mode may be influenced by how the VC is seeking to compete and the venture capitalists' organizational form. We argue that captive venture capitalists may be able to draw on their parent company for more financial and financial-management skills which may be less country specific and may also be able to draw on their parent's international network for identifying deals. Independent venture capitalists with stronger managerial and operational skills, which are more location specific, may be limited in their access to funds and need to identify syndicate partners for financial resources. Thus further research could survey captive and independent venture capitalists to seek answers to the question: do captive firms use local-resource seeking entry modes while independent venture capitalists use low resource access modes? These different bases for competition may help to explain the observed different entry modes by VC firms into foreign markets. Further research is required to explore this issue empirically and could be carried out using surveys or interviews with senior venture capitalists responsible for policy development.

Forms of control of foreign activities. A key strand in the internationalization literature concerns firms' choice between standardization and adaptation in the conduct of international operations (Bartlett and Ghoshal 1998). Control of subsidiary operations through tight linkages with the headquarters brings about adherence to parent firms' goals or targets, thus making performance predictable (Cray 1984). The need to accommodate diverse perspectives in multiple, new and complex entry modes in different markets, however, may require increased adaptation and responsiveness to local market, regulatory and cultural conditions and also requires multiple modes of people management (Doz and Prahalad 1986).

Venture capitalists that are large in terms of financial resources may be more likely to rely upon formal reporting mechanisms (Elango *et al.* 1995). Parent VC firms internationalizing to foreign markets, therefore, may be expected to impose formal reporting requirements on their counterparts in those markets. Particularly vital in foreign markets may be the information-processing and decision-making capabilities of experienced VC executives (Sapienza *et al.* 1996) based in the home market. Firms that possess more firm-specific knowledge and experience as embodied in their human capital may, therefore, be more likely to require more intensive and frequent interaction with their counterparts overseas (Edstrom and Galbraith 1977). The need to overcome delays in decision-making and resolve conflicts may necessitate reliance on informal co-ordination procedures (Egelhoff 1993). Venture capitalists that are generally small in terms of the total number of people they employ may find it easier to co-ordinate informally with their colleagues, without having to resort to formal procedures in the course of decision-making. Therefore, building on this resource-based perspective, an important research question concerns how firm-specific knowledge and firm size affect the nature of co-ordination of overseas VC activities.

A key dimension of venture capitalists' competitive advantage relates to the way in which they conduct their investment procedure (Wright and Robbie 1998). They may, therefore, require formalized procedures to transfer the capabilities inherent in their investment process. At the same time, however, VC involves different types of knowledge, ranging from strategic and financial to operational expertise. The need to transfer and aggregate expertise embodied in different people may call for mutual adjustment and the use of horizontal communication channels, as, for example, through scheduled and unscheduled meetings (Barkema *et al.* 2002; Grant 1996; Malnight 2001; Van De Ven and Delbecq 1976). Different stages of the VC investment process, moreover, involve considerable decision-making and search processes (for deal seeking, for instance), all of which entail uncertainty. Such uncertain and unstructured management tasks may increase the difficulty of co-ordination through programming and standardization (Marschan *et al.* 1996; Welch and Welch 1997). This knowledge-based aspect of the resource-based view raises the research question as to how the need to deal with different forms of knowledge affects the co-ordination of overseas VC activities. As this question involves examination of detailed processes, in-depth interviews with executives in VC head offices and overseas activities may be an appropriate approach.

Conclusions

In this paper, drawing on studies in economics, finance, strategy, international business, entrepreneurship and economic geography, we have reviewed the literature relating to international VC. We have shown that the vast majority of this literature relates to cross-country comparisons, at both macro and micro levels. It is evident that major research gaps exist in relation to work dealing with the international development of VC industries and crossing of country borders by VC firms.

We conclude with seven broader comments. First, our review has commented on the research methodologies used to examine international VC; in particular, the widespread use of, and over-reliance on, cross-sectional survey methods. We suggest that there is a need for the development, and analysis of, longitudinal data sets and an urgent need for the development of archival data sets.

Second, and related to the first point, our review of the literature indicates that cross-country research (at both the macro and micro level) has dominated research investigating the international development of VC and venture capitalists crossing borders. We consider that the dominance of cross-sectional work may well be correlated with cross-country studies. As a result, a shift in focus towards investigating the development of international VC and venture capitalists crossing borders should go hand in hand with a shift towards longitudinal research.

Third, our review has taken a broad definition of VC. The vast majority of research reviewed has not differentiated between different stages of VC investment, notably the potential for differences between early and late stage investments. This may be because much of the international VC literature has drawn on the US-based literature that tends to focus on new ventures and to regard later stage investments such as management buy-outs as part of a distinct private equity market. Internationally, however, there are major differences in the relative importance of early and later stage investments and the two aspects may typically be considered as part of the overall VC market. These differences suggest variations in the factors that influence the development of VC markets, VC investment behaviour between markets and how firms operate when they cross country boundaries. For example, there may be important differences in informational asymmetries between early and late stage investments that are moderated by institutional differences between countries. There may also be important differences in resource and capability requirements to internationalize successfully, depending on whether a VC firm is focused on early or later stage investments. To date, there is limited work that examines these distinctions. Notable exceptions are Jeng and Wells (2000), who distinguish the factors influencing the development of early and later stage VC markets, and Farag *et al*. (2004), who compare the financial structuring, monitoring and exiting behaviours of early and late stage VC investors in CEE and Germany.

Fourth, much of the cross-country and crossing-border micro-level work has focused on the behaviour of venture capitalists in relation to their investee portfolio companies. That is, research has focused on comparing either outflows of funds across different countries or outflows of funds internationally. There has been little micro-level research that analyses issues relating to the inflows of funds into VC funds either in terms of comparisons across different countries or aspects of venture capitalists raising funds from different countries. Further research is needed in this area.

Fifth, in terms of the geographic coverage of studies, there is unevenness in terms of the balance of countries researched. To some extent, this is a reflection of the recent growth of new markets, with the number of firms in some markets precluding quantitative analysis of any kind. Research is now appearing on CEE and Asian markets, but there is scope for further development. Of particular need for attention is the need to recognize that there may be significant heterogeneity between countries within a particular region so that the grouping together of countries within a geographic region in an attempt to address sample size issues may be problematic.[1]

Sixth, our review adds to understanding of the future potential for the globalization of VC. Gompers and Lerner (2001) note that, until recently, efforts to transplant the VC model internationally were rare and that many recent efforts to stimulate VC have met with mixed success. They suggest that, for a VC market to be successful, there is need for an ample supply of promising new technologies, a set of knowledgeable managers willing to take risks, helpful regulatory and tax conditions, and robust markets in order to exit investments. Where successful new VC markets such as Germany, India and Israel have developed, these have spurred cultural, economic and regulatory changes that make continuing VC success in these markets likely. The studies cited here particularly emphasize the need to consider specific legal environments that influence VC and the influence of social networks and cultures. Our review leads us to agree only partially with the view (see e.g. Megginson 2004) that a case for a global market for VC and private equity is emerging. Rather, it seems to us that important national differences remain and are changing only slowly, so that markets are likely to remain nationally based. This has implications for the international behaviour of venture capitalists, suggesting a need to tailor entry strategies to local market conditions.

Finally, and more generally, VC firms present interesting avenues for developing the IB research agenda. Recent debate has questioned the longevity of the IB research agenda (Buckley 2002), suggesting that the big research question in IB is no longer clear. He indicates, however, that the interplay of national cultures and organizational cultures represents a research agenda with much life left in it. These aspects may be applied to the emergence of new institutions in the wake of globalization. Buckley also suggests that one of the future areas of focus for IB research is to identify trends towards and away from globalization. Peng (2004) takes the debate further by arguing that research needs to focus more on the factors that determine the international success and failure of firms. We suggest that the emerging internationalization of VC represents the development of an important new institutional form with important implications for the international prospects of firms that are as yet little understood.

Note

1 The nature of this problem is illustrated in the wider context of the study by La Porta *et al.* (1997, 1998) where there are considerable differences between countries with apparently similar governance system in terms of regulatory variables and yet similarities between some countries across governance systems.

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