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Logo of the project:



**financing
entrepreneurial ventures
in Europe**

Final publishable summary report

Executive summary

VICO is a research project, funded by the 7th Framework Programme of the European Commission (theme SSH-2007-1.2.3 – Grant Agreement 217485), which involves 9 universities and research centres from 7 European countries and whose aim is to assess the **impact** of Venture Capital (VC) financing on the economic **performance** of innovative entrepreneurial ventures in Europe as reflected by their innovation rates, employment creation, growth, and competitiveness, and the role which VC/PE investors play in helping these firms bridge their resource and competence gaps.

A comprehensive, robust, and contextual analysis of the moderating role and characteristics of the investor, the investee firms, and the business and institutional environment represent an original feature of the VICO project which goes well beyond previous studies in this field. In particular, the **value-added of the project** consists in:

- Cross-boundary research in the interface between innovation and financial studies
- Analysis of both the supply- and the demand-side of the market for venture capital financing
- Novel perspectives to understanding the extent to and the ways in which VC/PE promote new entrepreneurial ventures
- Integrated approach between macroeconomic and microeconomic analyses
- Design of policy initiatives to promoting innovative entrepreneurial ventures and their ability to attract external VC/PE investors

The project was organized in 9 research work packages (WP) which set the requirements for WP10, which was devoted to data collection. Data at micro-level included: the characteristic of companies (age, industry, and independence), the typology of investments to be studied in order to fully capture the heterogeneity of the phenomenon (i.e. considering not only “Silicon Valley-style” Independent VC funds), the target number of VC-backed companies per country and time period, the type of accounting information needed for the econometric analyses, the information needed about each round of investment (e.g. amount invested, equity stake, identity of the investor...) and the information needed about each investor (e.g. country, foundation year, typology...). The information collected by public sources has been supplemented by an extensive web based survey addressed to both companies and VC investors. This adds non-publicly available information such as the value added by VC to investee companies (according to the perception of both companies and investors). More information about the project can be found at the following link: www.vicoproject.org.

Summary description of the project

The VICO project studied the impact of venture capital (VC) financing on the innovation rate, employment creation, growth, and competitiveness of high-tech entrepreneurial ventures in Europe and the role VC investors play in helping entrepreneurial firms bridge their resource and competence gaps. The project created a unique hand-collected, large-scale longitudinal dataset on European high-tech companies and VC investments. This dataset provided the backbone for several studies within the project. The project also drew on survey, interview and documentary data. One of the major objectives of the project was to investigate the impact of the heterogeneity of VC investors on the performance of the portfolio firms. This heterogeneity is an important peculiarity of the VC landscape in Europe. In particular, in Europe governmental and bank-controlled VC are far more diffused than elsewhere. Moreover, different types of VC investors (independent VC, corporate VC, bank-controlled VC, governmental VC) exhibit different investment patterns. Governmental VCs are specialized in investments in small, young firms, especially in the biotechnology sector, that are relatively neglected by other investor types. They also rarely participate in investment syndicates. Conversely, independent VC are specialized in expansion investments in relatively older and larger firms.

The VICO project devoted considerable attention to disentangling the “selection” and “treatment” effects of VC investors on the investee firm. The treatment effect refers to the improvement in the performance of the portfolio firm caused by the VC investment, while selection refers to the VC investors being able to choose better performing firms in their portfolio. Our findings generally supported the view that VC investors had a considerable positive treatment effect on firms’ growth, productivity, as well as investment and innovation performance. VC investors helped their portfolio firms to outperform firms not backed by venture capital even during the financial crisis in 2008-2009. They provided their portfolio firms with the resources and competencies necessary to rapidly readjust their product/market offer during the global crisis.

However, the extent of the treatment effect was contingent on the characteristics of the investor (type, experience) and to some extent also of investee firms. The project demonstrated that experienced VC investors have disproportionately positive effects on employment generation and asset accumulation within the economy. The project further showed that independent VC firms exerted an unequivocally positive impact, greater than that documented in previous studies, on the productivity and sales growth of European high-tech entrepreneurial ventures. This effect was largely attributable to the treatment effect rather than to selection by VC investors of highly efficient firms

with superior growth prospects. The effect of corporate VC investments on productivity, instead, turned out to be negligible.

With regard to the impacts of the (direct) investments by governmental VCs, when we distinguished between firms backed in the early stages of their life (firms aged five years or less) and relatively more mature firms (aged more than five years), governmental VCs appeared to have a positive impact on the growth of the early stage firms, while the impact was negligible for the more mature ones. University VCs, by contrast, appeared to have a negligible impact regardless of the age of the portfolio firm.

The development stage of the firm during the first investment obviously affected the way in which the VC investor was able to exit. Dissolved companies were likely to have had their first investment earlier on during their development cycle while the firms which went public were likely to have had their first VC investment later on when their product was further developed..

Both independent and governmental VCs were helpful in alleviating the financial constraints of the portfolio firms, while bank-controlled and corporate VCs did not have any significant effect in that respect. VCs tended to select firms which were active in patenting and in turn VC-backed companies outperformed otherwise similar non-VC-backed companies in terms of innovation output. Most interestingly, syndicates led by independent VCs but including also governmental VCs exhibit the greatest positive impact on firms' innovation. The mechanisms by which VCs add value to their portfolio firms were studied by a survey comparing the activity intensity and profiles of government and independent VCs. Independent VCs turned out to be important for the firm in a number of activities which were of significance for the development of the business, such as professionalization (changing the management team and finding board members) and exit orientation. Governmental VCs played a fairly modest role in shaping value-adding behaviour of firms, and this finding held when controlling for factors such as firm age.

The VICO studies suggest that the availability of VC at fair terms seems to motivate nascent entrepreneurs to adopt high growth innovative strategies; they can expect that their ventures will be sustained and supported by VC later on. This implies that the availability of VC has a wider positive impact which goes beyond the investee firms and is related to the emergence of gazelle-type entrepreneurship.

Factors which promote the development of the VC industry include liquid IPO and trade sale markets, which make it easier for VC firms to divest their investments and, thus, to raise further funds as money flows back to the original investors with attractive returns. In this way, VC firms would be able to play an active role investing in unlisted firms to fill the equity gap. Furthermore,

VC investments in a country are positively correlated with R&D expenditures, and negatively correlated with the unemployment rate and average span of job tenure. Similarly, demand for VC investments is negatively affected by rigidity in the labour market.

In spite of the fact that during the last decade, more than one third of worldwide VC investments have been cross-border deals, the internationalization process of the European VC industry is lagging behind, and the European VC landscape remains quite fragmented. For establishing viable VC industries, the promotion the internationalization process of the European VC industry offers clear benefits. In particular, cross-border VC inflows can partly compensate for unfavourable conditions that local VCs face in countries with underdeveloped stock markets or unfavourable tax and legal conditions for VC investments. We have also found that a combination of cross-border and domestic venture capital promotes the best performance in a portfolio firm.

The VICO project examined policies for venture capital in three countries, France, UK, and Finland. In spite of positive developments, for instance, in the promotion of high-tech entrepreneurial ventures, there is overall failure in the promotion of viable VC industries. Even in the UK, which has been most successful in the emergence of VC, there are inefficiencies in the policy mix of support schemes and ambiguity about the expected returns of public schemes. There are also weaknesses in the skills of managers working in public funds.

Main S&T results

Econometric analysis of the impact of VC investments on firm's investments

The aim of WP1 was to understand the impact of VC financing obtained from different investors on the investment behaviour and the investment-cash flow sensitivity of firms. We hypothesize that different VC investors will be better able to reduce financing constraints and boost investments of portfolio companies.

Especially in the last phase of the project, particular attention was paid to differences between private and public VC investors. In particular we explored the extent to which young high-tech companies in Europe can benefit from Venture Capital (VC). This research question is not trivial. There are strong theoretical arguments which can explain why young high-tech companies might face financial constraints hindering their growth that can be overcome by VC. However, the magnitude of these constraints, as well as the effective ability of VC to prevail upon them are a matter of empirical analysis. On the one hand, financial constraints could be economically not significant in size, meaning that financing should not be considered among the causes of the unsatisfactory innovative

performance of European companies. On the other, VC could be inadequately skilled to provide investee firms with the financial and non financial resources they lack.

A second, and possibly more interesting, reason why an empirical investigation in this field is needed, is that VC in Europe is profoundly different from VC in the US, where this category of investors has grown and has been most frequently studied. In the US, VC is predominantly pursued by independent, limited partnership, management companies. Independent VC (IVC) is, instead, less developed in Europe. Therefore, policy makers have become increasingly concerned at the lack of risk capital available to young high-tech companies. As a public response to a perceived market failure, several Governments have set up Public VC (PVC) programs. PVC investors differ from IVC in terms of characteristics and objectives. Therefore, a comparison of these two forms of VC financing is definitely necessary.

Results may be summarized as follows. Consistent with theoretical arguments and previous findings, we find that, on average, non-VC-backed companies in our sample are significantly financially constrained. The impact of VC on firm's investments is highly specific on the typology of the investor involved in the deal. IVC appears to be effective in increasing firm's investments and in alleviating firm's financial constraints, and these effects are found to be persistent over time. The positive effect of IVC on firm's investment rate is due to the provision of financial resources, while the removal of financial constraints is attributable to the non-financial value added of IVC investors. Conversely, even controlling for the investment amount invested, we find that PVC investors do neither cause an increase in firm's investments nor reduce their cash flow sensitivity.

Econometric analysis of the impact of VC investments on innovation, employment, growth and competitiveness

WP2 aimed at understanding the impact of different typologies of VC/PE investments on the following dimensions of firm's performance.

1. Growth (in terms of sales, total assets and employees)
2. Innovation output as reflected by patenting activity
3. Productivity and profitability
4. Financial status (in terms of rating)

Furthermore, we aim at analysing how performance is influenced by two components of investor heterogeneity, namely:

1. The “between” component: heterogeneity among different categories of VC/PE investors

2. The “within” component: heterogeneity among VC/PE investors that belong to the same category.

Growth

Whether organizations learn from experience when performing strategic activities, such as forming interorganizational relationships, has been a major topic of scholarly interest in both the strategic management and the organizational literature. Yet, this literature provides mixed and even contradictory evidence. While some scholars have found a positive relationship between experience and performance (Barkema et al., 1997; Sorensen, 2007), others have found no significant relationship (Merchant and Schendel, 2000; Zollo and Singh, 2004) and some even pointed towards the negative consequences of experience (Haleblian and Finkelstein, 1999; Shepherd et al., 2003). This suggests that important contingencies are at play (Barkema and Schijven, 2008). One such contingency is the specificity of the experience accumulated across time. However, while the theory of absorptive capacity indicates that experience needs a certain level of specificity to foster learning (Cohen and Levinthal, 1990), others argue that when firms accumulate experience in only one particular area this may increase the risk of entering competency traps (Levinthal and March, 1993; Hayward, 2002). This study focuses on the impact of different types of firm experience on the distinct tasks of selecting promising companies and influencing company development.

The lack of consensus among researchers certainly provides some of the motivation for conducting this study. More importantly, my concern is that the prior empirical literature suffers from a methodological problem. Specifically, the typical empirical analysis relates accumulated experience in the formation of interorganizational relationships to firm performance (the study by Sorensen (2007) being an exception). The estimation technique in turn treats the formation of these relationships as exogenous. It thereby implicitly assumes that the respective firm is either unable to influence the selection of its partners or that partner selection is the result of random choice. Nevertheless, scholars generally highlight the importance of prudent partner selection when establishing a portfolio of interorganizational relationships (Stuart et al., 1999). Firm experience becomes endogenous when selection causes firms to cooperate with companies that are better along a number of possibly unobservable dimensions. This causes that the coefficient of the experience variable will be biased. As such, failure to account for selection can lead to misleading and even incorrect conclusions (Shaver, 1998).

Moreover, the formation of an interorganizational relationship is typically treated as one single homogenous activity. Nevertheless, the subactivities of selecting companies that match with the focal firm and influencing company development through the provision of superior tangible and intangible

resources differ significantly in terms of their causal ambiguity, frequency and heterogeneity. As the relative effectiveness of learning depends on the characteristics of the activities this may have important consequences. For instance, it is more difficult to learn from general experience when activities are characterized by a higher degree of causal ambiguity, occur less frequently and are more heterogeneous (Zollo and Winter, 2002). In such cases, more specific experience may be needed to facilitate learning (Finkelstein and Halebian, 2002).

Although I expect the abovementioned concerns to apply to many types of strategic activities, the empirical investigation focuses on the formation of investment relationships between venture capital firms and entrepreneurial companies. I construct a unique longitudinal database, free of survivorship bias, which tracks the development of companies from the year of investment and up to five years after the investment. Random Coefficient Modeling (RCM) is used as an appropriate longitudinal technique to model both the dynamics of growth within companies and differences in growth across companies (Bliese and Ployhart, 2002). The longitudinal analysis offers an important methodological contribution to organizational growth research as well. This research typically measures growth as the difference in size between two points in time, thereby ignoring development in-between these two points (Weinzimmer et al., 1998; Delmar et al., 2003). Results demonstrate how companies, which connect with venture capital firms that have more general and industry-specific experience, exhibit steeper growth curves both in employment and total assets. Overall experience mainly drives the selection of promising companies pre-investment, while industry-specific experience plays a particularly important role in influencing company growth post-investment.

Innovation

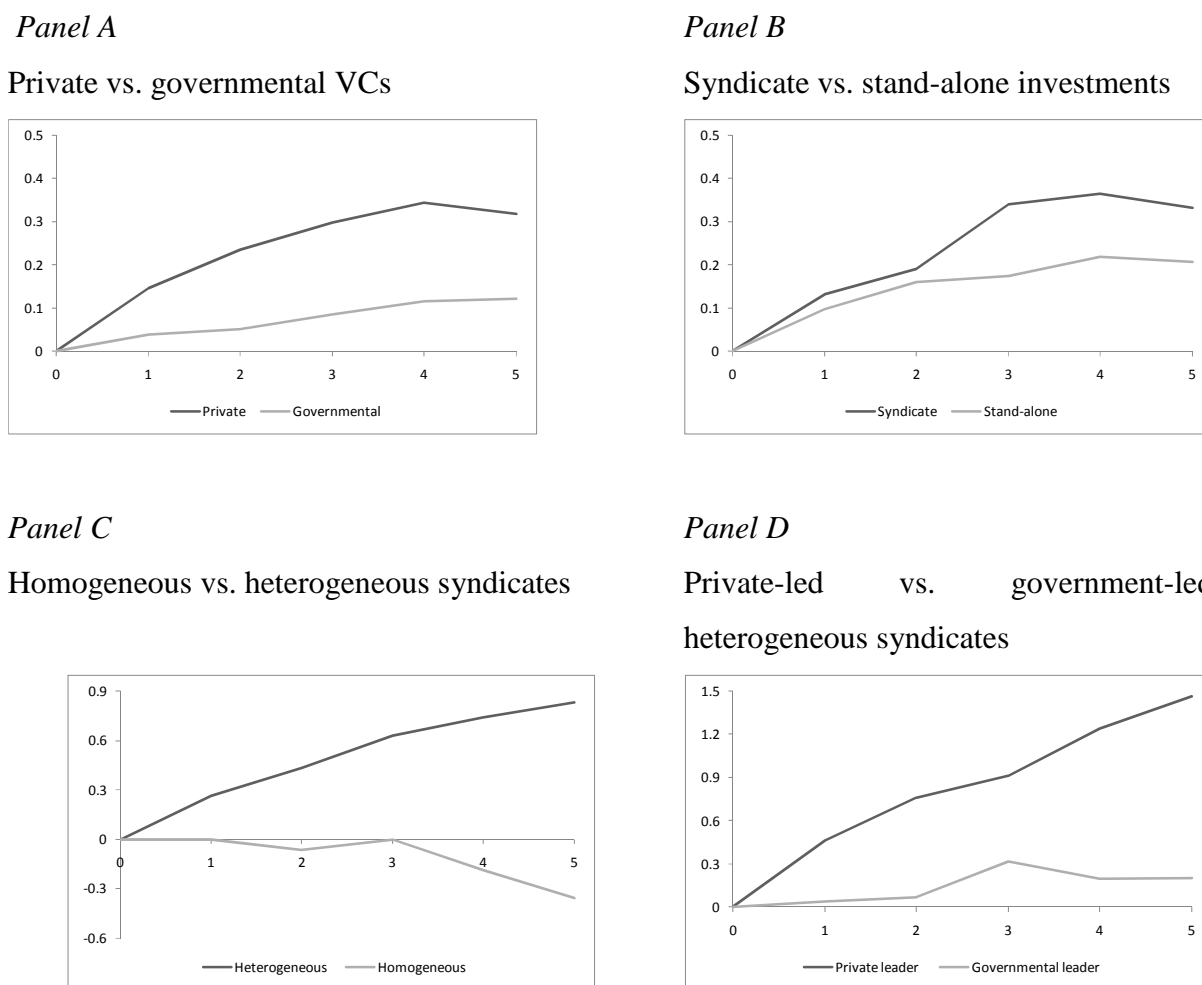
Drawing on the VICO data, we investigated how the investor type (governmental vs. private VC investors) and syndication moderate the impact of VC on innovation in portfolio companies. We measured the evolution of the patent stock in a subsample of biotech and pharmaceutical companies one to five years after the first VC investment and, using propensity score matching, we attempted to identify which form of venture capital is best-suited for innovation.

A graphic overview of the main results is reported in the figure above. Private VCs outperformed governmental ones (Panel A) and syndicated deals were more effective in sustaining innovation than stand-alone investments (Panel B). In companies financed by syndicates and by private venture capitalists the patent stock increased significantly faster than in otherwise similar non-VC-backed companies.

The most interesting and novel result was obtained by combining the two dimensions (investor type and syndication). We analysed how syndicated deals differed in their impact on the patent stock

depending upon whether the syndicate is a homogeneous one (i.e., consisting of only private or only governmental VCs) or a heterogeneous one (consisting of both private and governmental VCs) and upon who leads it (a private or a governmental VC).

Figure 1: Increase in patent stock for different VC forms 1 to 5 years after the VC investment



We found out that companies financed by heterogeneous syndicates outperformed companies financed by homogeneous syndicates (Panel C). Our results finally suggest that the best-suited form for innovation is a heterogeneous syndicate where a private VC investor takes the lead (Panel D). This form of VC outperformed also private stand-alone investments and private-only syndicates.

Productivity

The main purpose of this task has been to identify and analyse the impact of venture capital on the productivity of venture backed enterprises. The study has been conducted with reference to the Italian case. The empirical analysis has been focused on the activity of independent (financial) institutional investors. In particular, in order to realize the “within component” analysis (which

points the attention on the heterogeneity between venture capital investors of the same category), we have identified the following key-variables to study, sorting the sample in consideration of: type of deal and investment stage (seed financing, early stage, expansion); origination of the deal (the native reason which caused the deal); holding period; geographical provenience (foreign/country) of the investor; generalist or specialized investor (in relation to a specific investment stage); exit strategy.

The effect of venture capital on productivity has been studied using the variation of TFP considering its value before and after venture capital investment. So, the initial value is the one of the investment year (or the previous year, in function of the investment month) and the final value is the one of the divestment year (or the previous year, in relation to the divestment month). For those deals (18% of the sample) which are not yet divested, the final value of TFP has been computed with reference to the last available year. In order to remove and neutralize the effect of a different holding period related to each deal, and so having homogeneous and comparable data, TFP variation has been measured in terms of Compounded Annual Growth Rate (Cagr) with reference to every operation.

First of all, the computation of TFP (measured as Cagr) for each deal involved in the sample has given the following result: 81,8% of the companies has shown better performances during the cooperation with the institutional investor, as described below.

The impact of independent venture capitalists on the productivity of VC-backed companies is significantly higher, as expected, in Expansion financing deals, which are strictly dedicated to the development of the company. Also Seed Financing deals shows very appreciable performances and this is due to the fact that the “imprinting” and the contribution of the venture capitalist (in terms of structure, organization and management of the new company) can produce its effects just from the beginning of the new entrepreneurial history.

Having Corporate Spin Off as origination seems to be a guarantee of a high impact in terms of productivity growth and the reason of this may be found in the presence of better-formulated entrepreneurial formulas.

The impact of independent venture capitalists on the productivity of VC-backed companies is much higher in those deals in which the cooperation between the investor and the company lasts 3 or 4 years, which is the average period of cooperation of the whole risk capital market in Italy. Other positive performances may be found in short term deals or in those deals in which the cooperation is planned to be really long in order to achieve particularly significant aims, such as the flotation on a regulated market.

Foreign investors, which are international operators, show a better capability in order to support productivity growth in VC-backed enterprises. This is probably traceable to their greater dimension,

their bigger experience and their specialization, three determining factors for the success of venture capital investments. Specialist investors confirm to have better performances in terms of a higher impact on productivity growth of target companies. This is, as expected, due to the great difference existing between investments at different stages. Also crossing these two key-variables, the obtained results are extremely coherent.

The impact of independent venture capitalists on the productivity of VC-backed companies is higher in those deals in which the cooperation between the investor and the company is concluded with a Buy Back or a Releverage. This is coherent, because these sorts of way out are synonymous of a well-performing deal. For what concerns Ipo, probably one of the most attractive exit way, it is important to underline that a crucial role in this not-exciting performance is played by the duration of the deals and in the use of many resources to reach the flotation.

Rating

This task focused on the impact the controversy about the driving sources behind the success of the private equity model and on how this business model affects the target companies. We investigate operating performance and distress levels of European companies around the buyout event in the period between 2000 and 2008, in which private equity transactions became increasingly widespread across Europe. In addition, we analyze whether buyout firms go bankrupt more often than comparable non-buyout firms. The analysis delivers evidence for the selection rather than value-adding or value-transfer effects in European buyouts from the period 2000-2008. We do not find many hints that private equity investors trigger excessive financial distress and lead their companies into bankruptcy. More specifically, the results suggest that private equity investors select firms which are less distressed than comparable companies and that they increase the companies' distress levels after the buyout. However, this increase in the distress levels does not raise mortality rates of the buyout companies over those of comparable non-buyout companies, unless they are backed by inexperienced private equity investors. In addition, syndicates seem to be better able to cope well with highly distressed companies than stand-alone investors. Finally, we find only modest effects of private equity investors on changes in the target operating performance.

As our paper covers a dynamic and highly topical issue of private equity investors' impact, it contributes not only to the academic research, but also to the recent policy discussion on regulation. In response to the global financial crisis, governments around the world are rethinking their approach to the regulation of financial institutions and financial markets, private equity investors being one of the central issues. The U.S. adopted new rules on hedge funds and private equity in July 2010 as part of the Dodd-Frank Act, and in Europe the AIFM directive on regulation and supervision of managers

of alternative investment funds was adopted in November 2010. These processes pose many questions concerning the role of private equity funds during the financial crisis, which may possibly be answered only after some time has passed. Our paper cannot ultimately answer the question of whether private equity investors are “visionaries” or “locusts”. Nevertheless, it attempts to provide some insights into how private equity investors, who have become an influential and important part of European economies in recent years, affect their portfolio companies, in particular in terms of distress.

In further research, we would like to take a closer look at the heterogeneity of investor types and their impact on performance, distress levels and bankruptcy. In particular, we want to investigate the impact of investor type (independent private equity investor, bank-related private equity investor, etc.) since institutional diversity is very pronounced in Europe and since these investors' differing aims, know-how and governance structures may have important effects on the way how they select and add value to their companies.

Value added by VC investors on invested firms

The objective of this WP was to understand how different types of VC/PE investors provide firms with value enhancing services alongside capital. Particular attention will be paid to both the demand and supply perspectives on this issue.

A common characteristic of VC/PE financing is that it is bundled with other value added services (scouting, monitoring, coaching, signalling, and social capital addition). The different functions that VC/PE investors perform to the benefit of invested firms are likely to differ by type of investor, since these have different objectives and capabilities in performing their role in the invested firm. Furthermore, the different characteristics of startups /invested firms influence their need for value-adding services. Two further key but neglected dimensions concern the role of domestic versus international VC investors and the role of lead and non-lead syndicate members. These questions are examined in this WP from the point of view of both the invested company and the VC investor across a number of European countries. The WP is organised in 3 tasks. Tasks 3.1 and 3.2 analyse the value-added from the perspective of the invested firm while task 3.3 will complement the analysis by taking the investor perspective.

Task 3.1 compares the mechanisms that different VC/PE investors use to provide non-financial value-added services, the impact these have on portfolio firms, and unexpected negative effects of VC/PE involvement. The data are collected through a survey administered to a subsample of invested firms (drawn from the dataset of VC/PE backed firms built by WP 10).

Task 3.2 studies the role of domestic versus international VC/PE investors and the role of lead and non-lead syndicate members. The data come from the VICO database, the questionnaire developed in task 3.1.

We summarize the results obtained by the two tasks in the remainder of the Section.

Value added by VC

This task compares the post-investment value-added activities performed by governmental venture capital (GVC) and independent venture capital (IVC) for their portfolio companies, and controls for the selection effect which the different investment profiles of these investors might have on the forms of value added. The study uses a unique data set based on a survey addressed to venture capital – backed new technology-based firms from seven European countries. The study focused on the importance of the contribution by the first lead investor in a variety of activity areas, as assessed by the investee companies. The study also pays attention to potential adverse effects of the post-investment engagement of the investors on the firm.

Using a composite indicator of the extent of value addition, we find no statistically significant difference between two types of investors. However, the type of value added differs across investor type and, in particular, IVC's contribution proves to be significantly higher than GVC's in a number of areas, including the development of the business idea, professionalization, identifying board members and exit orientation.

The contribution of the paper to the extant research literature is a focus on two important, specific types of venture capital which potentially have widely different investment motivation, preferences, human capital and investment horizons. A second contribution concerns an exploration of the adverse effects which the involvement of venture capitalists in their investee firms might bring about. The study therefore paid attention to whether the two investor types differed in their investment profiles in order to be able to control for the potential selection effect. The investors differed in a number of respects and these findings were used as controls in further analysis.

The value-adding activities were analysed in a univariate and multivariate context using the variables indicating portfolio selection. In a multivariate context most differences between the two investor types, first observed in a univariate context, were reinforced. The independent venture capitalists were more important in professionalisation, activities such as changing the management team and finding board members as well as in exit orientation (finding acquirers for trade sale). In addition, independent venture capitalists were more important for accelerating the growth of the firms and offering credibility to other investors. Even though the overall value-adding behaviour of the two investor types did not differ – using a composite indicator for value-adding activities - at a

statistically significant level, we may judge that independent investors performed better in a number of activities and in those that were of importance for the business activities of the firm. We thus found, at least, partial support for our hypothesis one, namely, that on average the importance of the value-adding contributions of the government venture capitalists was smaller than that of the independent venture capitalists. We also got partial support to our second hypothesis, namely, that the profiles of the value added activities of the two investor types differed.

It was assumed that the activities of the lead investor might have caused friction and adverse effects in the company. However, the study showed that, overall, such effects were regarded as minor. There was also little difference between the two investor types in terms of these adverse effects, with the exception that interaction between the investor and the investee suffered from less adverse effects when a government VC was the lead (and often the only) investor. Though it may be difficult to interpret the findings concerning the adverse effects— since our measure concerning involvement entailed a judgment of its importance – our findings provide some support for assuming that active involvement can lead to frictions in the relations between the investor and the management of the investee firm.

The fact that we did not obtain larger differences between the two investor types in their value-adding contributions may be related to the fairly small size of the sample and the heterogeneity of the data. The data analysed were from six countries and the nature and behaviour patterns of, e.g., government venture capitalists, may differ from one country to another. There seems to be a great deal of intra-investor type of heterogeneity. Whether it is related to the multiple- country context or whether it is independent of it is not known. Nevertheless, one of the findings of this study is that the government venture capitalists, in particular, evidence a fairly modest role in their value-adding behaviour.

Our findings are in broad agreement with previous findings in supporting the view that government venture capitalists provided less value-added to their portfolio firms (e.g., Knockaert et al., 2006 and Knockaert and Vanacker, 2010). The role of the independent venture capitalists in professionalisation is also in agreement with many previous studies (e.g., Ehrlich et al., 1994; Maula et al., 2005). Some of the authors cited in the beginning of this paper regarded different investor types to be complementary since they added value to their portfolio companies in a complementary way (e.g., Maula et al., 2005). Our study could not provide evidence of complementarity because we could not study the complementarity of the behaviour of venture capitalists in one and the same syndicate, the analysed survey data being focused on the lead investors. Furthermore, most of the firms which were in our data did not have syndicates, and we were thus able to study only the

influence of the lead (or only) investor. Thus, the performance differences between the two studied investor types do not convey to us any information of whether another investor filled in the roles and functions that were assessed to be less important in the behaviour of the lead investor.

On the basis of our findings we may raise the question of what might be the most appropriate role for GVC. In the direct investments these seem to perform only in a modest way in providing value-adding support to the portfolio firm management. We may question whether they might be more appropriate in a role as a fund of funds. However, we need more information of their potentially complementary roles within syndicates before we may draw more definite conclusions on the matter. Larger and more robust datasets would also allow for more direct comparisons of the performance of particular investor types in different national contexts.

Internationalization

This task studied how cross-border venture capital investors as opposed to domestic venture capital investors influence the development of their portfolio companies. For this purpose, we use a longitudinal research design and track sales from the year of initial venture capital investment up to seven years after this investment in 692 European technology-based companies. Findings demonstrate how companies backed by cross-border venture capital investors initially exhibit lower growth in sales, employees or assets compared to companies backed by domestic investors. After a couple of years, however, companies backed by cross-border investors exhibit higher growth compared to companies backed by domestic investors. Finally, companies that raise finance from a syndicate comprising both domestic and cross-border investors develop into the biggest sales generators. Overall, this study provides a more textured understanding of the role played by venture capital investors as their portfolio companies develop and thereby require different resources or capabilities over time.

Our findings suggest that proximity and knowledge of the local institutional and legal environmental are important for venture capital investors investing in early phases of company development. Domestic venture capital investors are better equipped than cross-border investors to overcome information asymmetries and to provide the resources relevant in the early development phase. Refining the opportunity and building the early resource base is important in this phase, and domestic venture capital investors are better equipped to provide support in these matters. Cross-border investors, on the other hand, have a better knowledge of external markets and are able to provide legitimacy to the entrepreneurial firm in international markets. These resources are especially beneficial for more developed firms. Our findings hence provide further support for the view that external parties may provide important resources to support the growth of entrepreneurial

companies, but not all parties provide the same resources. Portfolio companies exhibit strongest growth when combining local knowledge and support provided by domestic investors with international knowledge and legitimization provided by cross-border investors. We hence provide further evidence of the positive value attached to the complimentary resources that investors may bring to a heterogeneous venture capital syndicate (Dai et al. 2010).

The finding that companies backed by heterogeneous syndicates comprised of both domestic and cross-border investors outperform all other types of syndicates is interesting. It shows that both types of partners play a complementary role from an early stage onwards. While the internationalization resources provided by cross-border investors constrain early company growth when no domestic investors are present, these resources enhance company growth when complemented by those provided by domestic investors. This might reflect that portfolio companies implement internationalization routines in an early development phase, which may be further exploited in a later stage when internationalization becomes important. This is consistent with the imprinting view, suggesting that early routines have a long-lasting effect on company development. Combining the complementary resources of domestic and cross-border investors is hence relevant from an initial development stage.

Our study is important, as few studies have disentangled the effects of domestic and cross-border venture capital investors on their portfolio companies. Most studies on the effects of venture capital have studied performance at the venture capital firm or fund level, focusing on portfolio company exit and/or survival, or focusing on post-IPO performance (limiting these studies to the most successful portfolio companies). Our study, in contrast, is one of the first to focus on the development of the portfolio company. This is important for entrepreneurs, as the goals of investors and entrepreneurs are not always aligned. Understanding how portfolio companies develop after having received venture capital, and how different types of investors contribute differently to firm development, is hence relevant.

Value added: the perspective of VC investors

While the academic literature identifies the non-financial value-added of post-investment venture capital, it fails to point out that this value-added often starts well before the investment. This is the main results of the two first case studies we are presenting in the following pages. Owing to their market and product analysis, and to their expertise, VCs provide knowledge to the founders from their first encounter. As the due diligence advances, the investors and the start-up can alter the business model and business plan.

The first case study shows that the VCs' contribution of knowledge is considerable when the in-depth due diligence is carried out and the VCs are particularly interested in the start-up. Of course the VCs do not produce knowledge without an ulterior motive. They have two reasons for doing so. First, to ensure that the business model and business plan are the best possible, to lead the firm to success. For this purpose, the VCs mobilize their networks and expertise to test the start-up's product with future customers and to identify the likely pitfalls that it could encounter. Second, this knowledge enables the investors to verify the entrepreneurs' wish to work hand-in-hand with the VCs and to be receptive to their advice and comments.

The second case study confirms this pre-investment role of VCs. Unlike the first case where the VC does not invest in the company, in this second case the VC takes a stake in the start-up. Regarding this case, we would also like to point out that while most studies have focused on the post-deal activities of VCs, their intervention can begin well before the point at which they invest in a start-up. The VC played a part in the emergence of the firm, by making its investment conditional on three requirements that significantly redefine the human, technological and social resources of the new venture at start-up. The second case reveals the involvement of the VCs, in what is generally considered as the most personal and essential activity of the entrepreneur: opportunity recognition.

The two detailed case studies have shown the importance of VC value added during the due diligence period (whether it leads to the venture capital firm funding the start-up or not). In the two last cases, White Bear Yard (WYB) and Le Camping, we aim to show that new start-up funding models are emerging, often supported by successful tech entrepreneurs. We have looked at two of these models, two business accelerators: the first is based in London and the second in Paris. Both are meant to shed light on the issue of the value added of VC investors for the firms in which they have invested.

But business accelerators like WBY are also different from incubators in that they are often funded by venture capitalists who wish to fund projects with a strong potential. Creating a business accelerator allows them to monitor and influence the development of enterprise projects, which are then from the start formatted to meet their requirements. In other words, accelerators generally take in projects and companies that very quickly target a national or global market. These companies generally belong to the same domain: software, WEB and digital technologies. The accelerator offers them the same services as an incubator, but in addition to this the managers of the accelerator are strongly involved in the development of these projects, in which they also often hold shares.

The double selection process of investors and invested companies

The matching between the demand for- and the supply of VC financing is a complex phenomenon which deserves a specific analysis carried out in this WP. The financing of a firm by a VC investor occurs when two events take place jointly: the firm seeks VC financing and an investor agrees in financing the firm. While the latter selection process is thoughtfully analysed in the literature the former is largely unexplored.

This WP will analyse both the willingness of firms in obtaining VC financing and the criteria used by different VC investors in selecting an investment opportunity.

VC financing may be considered as a multi-stage and multi-actor process. A considerable share of entrepreneurial ventures does not actively seek VC funding nor is interested in becoming backed by a VC. While our research findings point to the financial and non-financial benefits that VC brings to entrepreneurial ventures, the following question arises: Why are these ventures not keen on receiving VC funding? Though there is a vast literature about the selection process from the perspective of VCs, only a handful of studies analyze the decisions made by entrepreneurial ventures of entering “*the VC market*”.

This decision depends positively on the (perceived) goodness of the firms’ business ideas and negatively on the resources firms have for realizing these ideas. Firms characterized by potentially profitable business ideas but lacking internal resources (e.g. financing, managerial expertise, a good network of contacts) represent the ideal target for VC investors. This is what we label as the “frog kissing” side of the matching process between VC and investment candidates: other things being equal, VCs prefer a frog which can be turned into a prince by providing it with the resources necessary to develop the firm’s business idea, rather than an (expensive) prince himself.

We analyzed both the determinants of the decision by 202 Italian high-tech entrepreneurial ventures to enter the VC market, and the subsequent selection by the VC investors. Our empirical test-bed, Italy, is a rather adverse environment for VC and thus a particularly interesting setting for this kind of study.

We found that search costs negatively influence the likelihood of a high-tech entrepreneurial venture being on the VC market. Firms located in geographical areas where there is a dearth of VC abstain from looking for external capital. The opposite holds true for firms created by entrepreneurs, who are a typical target for VC investors (e.g. individuals with economic and managerial educations). Moreover the availability of other sources of financing (e.g. debt, personal finance) has a negative effect on the likelihood of firms looking for VC.

These findings are in line with the view that entrepreneurs will be discouraged from looking for VC if they expect that obtaining VC is difficult or if they have sufficient alternative funding. The policy implications are obvious. A larger and more competitive VC industry encourages entrepreneurs to look for VC and to adopt a business model based on higher growth ambitions.

Patterns of integration of the European VC sector and internationalisation of VC investors

The objective of this WP was to understand cross-border private equity flows of VC/PE investors, which have increased substantially in recent years. Tasks 7.2. and 7.3, that aim at explaining internationalisation strategies on the level of the individual VC/PE investor, have been performed.

International human capital and international network relationships

There is limited understanding of the drivers of private equity (PE) firm internationalization, with PE firms defined as financial intermediaries that support both early stage ventures (classic venture capital) and later stage companies with growth and/or restructuring opportunities (Gupta & Sapienza, 1992; Wright & Robbie, 1998). PE firms generate return across borders through the selection, guidance and exit of these investments which requires goal alignment, management of information asymmetries and adequate value adding. These activities are however highly determined by spatial bias (Sorenson & Stuart, 2001) which raises the question how PE firms overcome the complexity of investing in geographically and institutionally distant regions.

Increasing globalization is one of the most important developments in the professional service industry. Over the last thirty years, professional service firms have benefited from the possibilities of foreign activities for growth and diversification (Contractor, Kundu & Hsu, 2003; Hitt, Uhlenbruck & Shimizu, 2006). International activities are however associated with a steep increase of information asymmetries (Filatotchev & Wright, 2011). These are particularly pronounced in professional services, due to the knowledge-intensity of these activities and the inherent difficulties for customers to verify the quality of the services ex-ante and to monitor them ex-post (Sanchez-Peinado & Pla-Barber, 2006; von Nordenflycht, 2010). Despite these adverse circumstances, our knowledge of how professional service firms deal with information asymmetries in cross-border activities is still limited. Venture capital (VC) firms' cross-border investment activities are an interesting example of professional service firms' recent global development. VC firms' value creating activities reside to a large extent in their ability to address information asymmetries and agency issues. The latter are heavily influenced by local market conditions and practices (Filatotchev & Wright, 2011).

A central theme in international business research is the importance of foreign knowledge accumulation that helps firms to deal with internationalization uncertainties (Yli-Renko, Autio & Tontti, 2002). In this work package, we investigate how foreign knowledge accumulation influences cross-border activities under conditions of large information asymmetries that characterize internationalization of professional service firms and VC firms in particular. Early internationalization theorists recognized the importance of internal knowledge development (Johanson & Vahlne, 1977). Subsequent findings from new venture internationalization studies (e.g. Oviatt & McDougall, 1994) showed that relevant foreign market knowledge may originate from outside the focal firm as well (e.g. Autio, 2005; Johanson & Vahlne, 2009). We therefore focus on both internal and external sources of foreign knowledge accumulation in this study: firm-level experiential knowledge acquired through previous foreign investments, inherited knowledge through the prior foreign work experience of its management and external knowledge through its foreign network partners.

A unique hand-collected international dataset combining survey and archival data from 110 VC firms in five European countries is used as empirical setting. A broad definition of VC is used, including not only seed and start-up capital but also later stage deals such as buy-outs (Wright & Robbie, 1998). Our results stress the positive effect of foreign knowledge accumulation on the international investment behavior of VC firms. Experiential knowledge has a large effect on international investment activity both in terms of the likelihood and the extent of international investments. Inherited knowledge through previous international activities of its managers is important as well, particularly for the likelihood of being international. Our results on external knowledge accumulation point to the importance of the foreign network structure and particularly to the differences between the number of international partners (network range) and the intensity of the cooperation with these partners. While the range of the international network does not have a significant effect on the likelihood of being international, the intensity of cooperation negatively affects it. International VC firms with intense foreign network relationships are more likely to become domestic. Finally, external knowledge accumulation does not affect the extent of international activities.

Our study makes several contributions. This paper advances our understanding of international professional services. As internationalization is associated with a steep increase of information asymmetries and agency problems, it is interesting to study the effects of foreign knowledge accumulation in a setting where these issues are particularly pronounced (Shertler & Tykvová, 2011). In addition, our results increase our knowledge on the international development of VC firms. While previous research has mainly focused on the effects of information asymmetries on the behavior and

outcome of VC firms outside their home country (e.g. Chemmanur, Hull & Krishnan, 2010; Devigne, Vanacker, Manigart & Paeleman, forthcoming), this paper focuses on the effects of information asymmetries and agency risks on the internationalization pattern of VC firms.

Cross-border venture capital flows and local ties:

Using a unique global dataset from developed countries, this paper provides evidence that not only traditional determinants of international capital flows affect cross-border venture capital flows, but that ties among local venture capital investors are related to size and style of these flows. Our results on size indicate that both number and value of cross-border flows between two countries increase with tie intensities within the local venture capital industries in both countries. Our results on style suggest that strong local ties go hand in hand with more intensive ties to foreign investors. Thus, rather than protecting the local market and fending off competition from foreign investors, local tie intensity seems to stimulate international syndication and expansion of venture capital financing across borders, which allows venture capital investors to build geographically diversified portfolios and to add value by building cross-border syndicates. These effects seem to be stronger for those foreign investors who already have experience in the particular destination country.

We have formulated three hypotheses on the relationship between local ties and cross-border venture capital flows. Our market protection hypothesis states that strong ties among local venture capital investors may constitute a barrier to the entry of foreign investors. Therefore, strong local ties in the destination country should discourage cross-border inflows. Our collusion hypothesis states that strong local ties may affect how foreign investors participate in local deals. More specifically, strong local ties may only hinder foreign investors' direct access to local deals (i.e., reduce stand-alone cross-border inflows) but they may allow for a syndication of local and foreign investors, which facilitates geographical diversification and deal flow generation. Finally, our value-adding hypothesis states that stronger local ties go hand in hand with higher syndicated cross-border inflows because cross-border venture capital syndicates bundle complementary skills, which may be particularly valuable to portfolio companies planning an expansion into foreign markets.

Our results can be summarized as follows: total cross-border inflows increase with strengthening local tie intensity. This result also holds when we control for potential endogeneity of the local tie measure. While stand-alone cross-border deals are neither encouraged nor discouraged through strong local ties in the destination country, deals syndicated among local and foreign investors are strongly positively related to the tie intensity in the destination country. Moreover, the likelihood of a foreign investor syndicating with a local investor increases with higher local tie intensity. These effects are less pronounced for those foreign investors who invest in the particular country for the

first time. This result indicates that for these investors, it more costly to join local networks than for investors who have already invested in this country in the past and have established contacts to local investors. Thus, rather than protecting the local market and fending off competition from foreign investors, local tie intensity seems to stimulate the expansion of venture capital finance across borders, allowing venture capital investors to build geographically diversified portfolios and to create additional value through cross-border syndicates.

One potential caveat with our analysis is that our country-wide measure of local ties may not capture the relevant market segment for competition. The reason is that we demarcate all local investors in a given country as potential network partners. The problem with such demarcation is that in small countries, all local venture capital investors may potentially form one network, whereas in large countries, there would be no single national network but rather several regional networks. For example, as Hochberg et al. (2010) have documented, in the United States, the relevant demarcation area is not the whole country, but there are rather several regional venture capital networks. Future research should address the issue of how to identify these within-country networks and whether it is possible to adequately combine information on these within country networks into one measure per country.

The characteristics VC investors and invested firms and the choice of exit mechanisms

In this WP we analysed how strategic choices made by the portfolio firm will add to our insights on exit possibilities, taking the moderating role of the characteristics of the VC investor into account. The project offers a unique sample of firms to analyse the aforementioned question. The database (developed in WP10) of VC-backed companies and, related, the VC investors who are involved in these companies are the perfect sample frame to start from.

In recent years, several studies have shown that bootstrap financing is frequently used by entrepreneurs to start their companies. Previous research has revealed that some bootstrapping strategies affect the growth and performance of start-ups. In this study we analyse the impact that using bootstrapping financing has on the exit of the companies and their type of exit.

We use a unique database of 170 companies from seven countries in Europe (Belgium, Finland, France, Italy, Spain, UK and Germany). Our guess was that when entrepreneurs use bootstrapping strategies to develop their technology and test the market, to increase the valuation of their companies and ultimately, to negotiate a better funding deal with investors. Additionally, we expected that in the process, entrepreneurs have more time to find the right investor for the company, who would be able to take them through an exit such as an IPO, MBO or acquisition.

The results of the study confirmed some of our preliminary hypotheses. First, we found that there is a statistically significant difference between the negotiation timing of the companies that went through an exit and the companies that did not exit. Specifically, we found that companies that bootstrap for a longer period of time and negotiate with investors later are more likely to go through an exit. While IPOs and MBOs have been shown to be positively correlated to the time of bootstrapping (hypotheses 1a and 1b are tested), acquisitions did not seem to be significantly affected by the bootstrapping strategies (hypothesis 1c not tested). On the contrary, we found that the earlier the companies negotiate with investors, the more likely they companies have failed and thus write-off (hypothesis 2 is tested).

This study contributes to two academic areas: the strategic entrepreneurship on the one hand and the entrepreneurial finance, including the entrepreneurial exit on the other hand. Within the literature of entrepreneurial finance, it specifically contributes to the bootstrapping literature. This area of research is attracting a growing attention for two main reasons. First, recent studies have proved that some bootstrapping strategies affect the performance and growth of the companies. And second because every time more companies are using bootstrapping as a strategy to reduce the risk and increase the valuation of their company. As we showed in this study, 66% of the companies in the sample have bootstrapped for at least two years. Additionally, this paper contributes to the literature on entrepreneurial exits. The results can help entrepreneurs to strategically decide whether they want to raise external capital at the founding time or, on the contrary, they want to postpone the negotiation timing with investors.

The results of this research have several limitations. First, we did not control for the sector and type of company. We are aware that bootstrapping decisions and process differ from one sector to each other as well as from one country to each other. As all the companies in the sample are VC-backed companies, we assume that all of them have certain degree of technology risk attached to the deals. Second, we have not been able to differentiate between successful and unsuccessful exits due the lack of reliable data on the amount invested and the value of the company at the exit. Based on Brander, Amit and Antweiler (2002) we have considered write-off as the only unsuccessful exit. Further research is needed to determine whether bootstrapping determines the success of the company at the exit. Further research is also needed to identify what bootstrapping strategies contribute the most to find the right investor and ultimately to take the company through a profitable exit.

Seed and pre-seed public policy schemes attracting VC/PE investors in innovative entrepreneurial ventures

During the period, WP9 was dedicated to the analysis of seed and pre-seed policies in two countries: France and the UK.

The study in **France** indicated an important shift in the French VC policy. While French policy makers used to focus on large companies, since the second half of the 1990s the emphasis has gravitated towards the promotion of high-tech entrepreneurial ventures and the emergence of a VC industry. The latter is conceived as being inseparable from the creation and development of high-tech entrepreneurial ventures. There have been many measures to support the creation of university spin-offs and other technology-intensive firms. These have been fairly successful and have promoted the creation of a fair number (100–150) of new high tech firms annually. However, in terms of the promotion of a VC industry, the measures have been less successful. Especially private seed and early stage investments have virtually disappeared and overall, a large part of VC investment in the country is supported by public schemes. Public support had, however, a positive impact in that during the global crisis the French VC sector was kept afloat by the public funds. There is also a paradox that VC investment in young and innovative firms, the riskiest niche of venture funding, is funded by individual citizens investing their savings by means of tax incentives through mutual funds, and by public funds.

The VC industry in the **UK** is, and has always been, the biggest and most successful in Europe. It has been more effective in finding money, funding success stories and creating employment than other VC industries in Europe. Surprisingly, one of the main reasons for this relative success is undoubtedly the early governmental support it received. Although very liberal, the UK government has provided efficient support to VCs.

However, there remain problems in the policy mix. Our analysis shows that there is a need for the UK government to have a clear strategy regarding the choice of actors relevant to closing specific kinds of equity gaps, and a need for specific and follow-up public schemes to support these actors. It seems that one of the mistakes of the British government was to define a unique equity gap between £200k and £2M. This is obviously not prudent, since this gap can go as far as £5M or more for, e.g., biotech companies. Thus, regarding high-tech, capital intensive start-ups, there is a need for funds able to support these firms in multiple rounds. This does not appear to have been the case so far: multiple schemes have been implemented, but some of them have not been cost-effective because they lacked further rounds of public support (University Challenge Funds, for example). A clear strategy, based on quantitative assessment of what would be efficient support depending on the

nature of the start-up, could lead to the implementation of more relevant and more efficient schemes. In addition, another uncertainty in government strategy seems to lead to inefficiencies. When designing a scheme like Regional Venture Capital Funds, one should be clear about the objectives of such an investment, e.g., whether it needs to seek sizable returns to investment or whether it should be a social actor, privileging job creation as a (social) return to investment. Currently the aim is not that clear, resulting in obvious loss in the efficiency of the support provided. Furthermore, public funds or mixed ones should be managed by skilled and experienced private investors, with a good investment track record. This has not been the case so far, especially for the regional funds.

Potential impact and main dissemination activities

The dissemination effort was significant throughout the whole project, and particularly intense in its last part. At the beginning of the project two focus groups were organized to steer the project toward the most relevant topics for practitioners and policymakers. During the project the website, newsletter, and policy briefs were used to continuously update stakeholder about advancements. Finally, two large scale dissemination events were organized at the end of the project involving practitioners, academics and policymakers.

Focus groups

Two Focus Group meetings were organized to steer the project, the first on 1 October, 2008 and the second on 24 September, 2009. Both meetings collected together venture capitalists, and to a lesser degree, policy-makers from the countries participating in the project and from the EU Commission. At the first Focus Group VICO participants introduced the project goals and presented findings from previous work of relevance to the study objectives. The meeting was intended for a discussion of central points of the planned research in order to obtain input for the further formulation of the study questions and the modification of the methods. The meeting succeeded very well in fulfilling these tasks. After the meeting, a short evaluative questionnaire was sent to the participants with a major motivation to improve the meeting format for the next meeting. The average overall rating of the meeting was quite positive 4 with a scale of 1-5 (5 was the highest score).

The second Focus Group was organised to update focus group members on the progress of the VICO research; discuss first findings from different work packages; and to discuss future direction of data collection and research. The presentations, and in particular, the preliminary findings from the VICO project prompted very lively discussion from the participants. One of the items discussed was related to the strategies for obtaining higher response rates in the survey to the venture capitalists, soon to be

carried out in WP3. The project obtained advice concerning various strategies to prompt higher response rates.

VICO project has so far produced four Policy Briefs, as required every six month. The first Policy Brief concentrated on the strategic impact of the project on the various stakeholders, practitioners in VC activities, entrepreneurs, and policy makers. The second Policy Brief reported on the very first findings of the VICO database on venture capital investments, the third Policy Brief reported on a study on the geographical patterns of venture capital investing, and the fourth how heterogeneity among Venture Capital (VC) investors in Europe reflects on the performance of investee companies, by focusing on two complementary dimensions of firm's performance: investments and productivity.

VICO Website

The VICO website is online since the summer 2009 and was moved to its current and definitive address in October 2009 (www.vicoproject.org). The website is divided in the five subsections:

- Home: basic description of the project and links to the European Commission
- Project description: a brief description of project's objectives and methodology
- Participants: the list of all project participants
- Dissemination: description of the activities carried out by the project
- Contact: email addresses of contact persons

Newsletter

Since October 2009 VICO has delivered regular newsletters to more than 8,000 academics, practitioners and policymakers throughout Europe. Newsletters reported the main findings of the project and promoted dissemination events.

Policy brief

The VICO project produced a final policy brief which summarized policy lessons learned from VICO findings. The brief ended up with a number of recommendations, summarized below:

The recommendations, first, emphasized a systemic view and targeting framework conditions for the emergence of the VC industry. Furthermore, it notes that a failure to recognize the need for coordinated policies is an important determinant of the modest success of previous policy initiatives in Europe. At the macro level, the project recommends

- shaping the educational system and European culture in favour of an entrepreneurial risk-taking and innovation prone attitude;
- the creation of a VC-friendly tax and regulatory environment, e.g. elimination of double taxation and registration problems, to encourage cross-border VC investments and to reduce national and local fragmentation of the European VC industry;
- encouraging serial entrepreneurship through measures such as changes in bankruptcy laws;
- the creation of liquid markets (IPO and trade sale markets) which facilitate exit strategies for VC investments. For example, schemes providing incentives to individuals investing in firms not listed on the official stock exchanges would increase supply and demand in second tier markets. In this regard, incentives to business angels should also be implemented in a harmonized way.

There are also several micro-level measures recommended, such as:

- provision of selected subsidies on a competitive basis to entrepreneurial firms to improve the pool of entrepreneurial ventures with high-level human capital and high aspirations;
- promotion of support services (like business incubator services) by experienced actors;
- provision of tax-based incentives and co-investment schemes to stimulate private VC firms to invest in young and small high-tech firms, especially in the seed stage;
- measures favouring the entry of VC firms managed by experienced managers through public funds of funds;
- provision of governmental VC funding only through co-investment schemes with experienced private VCs which take the lead, make the screening and selection of the investee firms and provide value-adding services to the investee firms;
- focussing government VC funding on the seed and start-up phases with the objective of attracting private VC investors in subsequent rounds;
- avoiding regional focus in government VC initiatives because it is too narrow a basis for high quality deal flow and operating at the national and/or European level;
- in governmental VC funding, not expecting returns symmetric with those of private VCs.

The policy brief has been widely distributed both to the national stakeholders of the partners (relevant officials in Ministries, the national venture capital associations and its members, business angel associations, participants in the national discussion on high-growth ventures, and researchers) and to European-level policy makers. At the European level, aside from Commission officials, members of the Economic and Financial Affairs Committee, and individual venture capitalists as

well as the EVCA have received the report. Partners have given talks about the findings, i.a., Sophie Manigart at EVCA Venture Capital Forum 17 - 18 October 2011, and Massimo Colombo at the Bank of Italy, 5 October 2011. In Finland the major national economic newspaper, Kauppalehti, published a front page article on the VICO findings on 19 October, 2011.

Dissemination meeting for policymakers

The meeting was held in Madrid on September 7-8 with the following program:

September 7th

- 14:30 Opening speech: *Policy challenges in financing high growth companies in a post crisis world*. Prof. Mike Wright (Imperial College of London. UK)
- 15:00 First session: Policy challenges in the light of the impact of VC during the economic crisis
Moderator: Prof. Massimo Colombo (Politecnico Di Milano. Italy)
Participants:
 - Mr. Vladimir Bilek (DG Economic and Financial Affairs. European Commission)
 - Dott. Andrea Montanino (Dipartimento del Tesoro. Ministero dell'Economia e delle Finanze. Italy)
 - Prof. Philippe Mustar (Ecole des Mines de Paris. France)
- 17:30 Second session: Internationalization and fragmentation of the VC market
Moderator: Prof. Sophie Manigart (Vlerick Ghent Business School. Belgium)
Participants:
 - Dr. Andrea Conte (Institute for Prospective Technological Studies, European Commission -Joint Research Centre)
 - Mrs. Ulla Hudina (DG Enterprise and Industry Financing Innovation and SMEs, European Commission)
 - Mr. José Moncada (DG Internal Market, European Commission)
 - Dr. Tereza Tykvova (ZEW, Mannheim. Germany)
- 19:30 End of day 1

September 8th

- 9:00 Third session: Policy measures to improve selection and value added in Europe
Moderator: Prof. José Martí (Universidad Complutense de Madrid. Spain)
Participants:
 - Prof. Fabio Bertoni (Politecnico Di Milano. Italy)
 - Mrs. Nuria Bosch Balada (Director of Baring Private Equity Partners; Former Director of entrepreneurship and financing programs at Catalonia Government. Spain)
 - Mr. Daniel Sánchez (General Partner at Nauta Capital; Chairman of the VC Committee, ASCRI; Member of the VC Platform, EVCA. Spain)
 - Mr. Pertti Valtonen (Innovation Department, Division of Growth Ventures, Ministry of Employment and the Economy. Finland)
- 11:30 Keynote speech: *The financial crisis, the banking system, and prospects for the growth of entrepreneurial firms*. Prof. Robert Carpenter (University of Maryland – Baltimore County. USA)
- 12:30 Wrapping up: Dr. Terttu Luukkonen (Research Institute of the Finnish Economy. Finland) and Prof. Mike Wright (Imperial College of London. UK)
- 13:15 *Addressing Major Societal Challenges through EU Research and Innovation Funding*. Mr. Dominik Sobczak (DG Research and Innovation, European Commission)
- 13:45 Closing speech: Mr. Enrique Gómez (Consejero Delegado. Empresa Nacional de Innovación. Ministerio de Industria, Turismo y Comercio. Spain)

Video recording of the is meeting available at the following links:

<http://a.eoi.es/13a>

<http://a.eoi.es/13b>

<http://a.eoi.es/139>

<http://a.eoi.es/13g>

Dissemination meeting for practitioners

The meeting was organized in two locations: Milan and Stresa between June 29 and July 1. The program of the conference was the following

June 29

10:30-10:45	Welcome address Giuliano Noci (Politecnico di Milano, Vice Rector)
10:45-13:00	Chair: Terttu Luukkonen (The Research Institute of the Finnish Economy) Massimo G. Colombo (Politecnico di Milano): "Patterns of venture capital investment in Europe: Evidence from the VICO database" Mike Wright (Nottingham University Business School): "Key challenges and open questions in venture capital research" Gary Stewart (Venture Lab at Instituto de Empresa Business School): "Start-up Europe: Reality or fantasy?" Helmut Kraemer-Eis (European Investment Fund): "Financing for entrepreneurship: the EIF's approach"
14:15-16:15	Panel: Challenges of Venture Capital in Europe Moderator: Emil Abirascid (Innov'azione) "Heterogeneity of venture capital investors in Europe: Strength or weakness?" Participants: H-Farm, IAG, Innogest Capital, High-Tech Gründerfonds Management GmbH "Global finance and localized venture capital markets"

June 30

9:00-10:30	Session 1: Parallel sessions Parallel session 1.1 - Sala Gardenia: " <i>Investors' entry and exit dynamics</i> " Chair: José Martí Pellón (Universidad Complutense de Madrid) "The effect of private equity investor reputation on secondary buyout and trade sale exits in Continental Europe" Authors: Sofie De Prijcker (Universiteit Gent), Mike Wright (Nottingham University Business School) Discussant: Yan Alperovych (HEC Management School – University of Liège) "Completing the technology transfer process: The IPOs and M&As of biotech spin-offs" Authors: Michele Meoli (Università degli Studi di Bergamo), Stefano Paleari (Università degli Studi di Bergamo), Silvio Vismara (Università degli Studi di Bergamo) Discussant: Federico Munari (Università di Bologna) Parallel session 1.2 - Sala Meridiana: " <i>With a little help from Uncle Sam: Public policy and business creation</i> " Chair: Pertti Valtonen (Ministry of Employment and the Economy, Finland) "Public policy and business creation in the United States" Authors: Douglas Cumming (York University - Schulich School of Business), Dan Li (University of Hong Kong) Discussant: David Devigne (Vlerick Leuven Gent Management School) "Government support for entrepreneurial finance in the UK: From "market failures" to "thin markets" Authors: Paul Nightingale (University of Sussex), Charles Baden-Fuller (City), Gordon Murray (University of Exeter), Marc Cowling (University of Exeter), Colin Mason (University of Strathclyde), Josh Siepel (University of Sussex), Mike Hopkins (University of Sussex), Joe Tidd (University of Sussex), Charles Dannreuther (University of Leeds) Discussant: Annalisa Croce (Politecnico di Milano)
11:00-13:00	Session 2: Plenary session - - Sala Gardenia " <i>One size does not fit all: On the heterogeneity of investors</i> " Chair: Gary Dushnitsky (London Business School) "Business partnership and the commercialisation of inventions" Authors: Thomas Åstebro (HEC School of Management Paris), Carlos J. Serrano (University of Toronto and NBER) Discussant: Tereza Tykvová (Zentrum für Europäische Wirtschaftsforschung) "Do Independent and Corporate Venture Capital Investors improve portfolio firms' efficiency through different channels?" Authors: Fabio Bertoni (Politecnico di Milano), Massimo G. Colombo (Politecnico di Milano), Diego D'Adda (Università Politecnica delle Marche), Samuele Murtinu (Politecnico di Milano) Discussant: Silvio Vismara (Università degli Studi di Bergamo) "The effectiveness of private and public Venture Capital in supporting the investments of European young high-tech companies" Authors: Fabio Bertoni (Politecnico di Milano), Annalisa Croce (Politecnico di Milano), Massimiliano Guerini (Università di Pisa) Discussant: Thomas Åstebro (HEC School of Management Paris)

15:30-17:30	<p>Session 4: Parallel sessions</p> <p>Parallel session 4.1 - Sala Gardenia: <i>“Financing innovation”</i></p> <p><i>Chair:</i> Thomas Åstebro (HEC School of Management Paris)</p> <p><i>“Debt financing of high-growth startups: The venture debt business model”</i></p> <p><i>Authors:</i> Timo Fischer (Technische Universität München), Gaétan de Rassenfosse (The University of Melbourne)</p> <p><i>Discussant:</i> Sofie De Prijcker (Universiteit Gent)</p> <p><i>“Which form of venture capital is best-suited for innovation?”</i></p> <p><i>Authors:</i> Fabio Bertoni (Politecnico di Milano), Tereza Tykvová (Zentrum für Europäische Wirtschaftsforschung)</p> <p><i>Discussant:</i> Federico Tamagni (Scuola Superiore Sant’Anna)</p> <p><i>“Does venture capital financing moderate the relationship between sales and employment changes? The case of the current global crisis”</i></p> <p><i>Authors:</i> Evila Piva (Politecnico di Milano), Cristina Rossi Lamastra (Politecnico di Milano)</p> <p><i>Discussant:</i> Ramy Elitzur (The Rotman School of Management, University of Toronto)</p> <p>Parallel session 4.2 - Sala Mediana: <i>“Financial and non-financial value added by venture capital investors”</i></p> <p><i>Chair:</i> Paul Nightingale (University of Sussex)</p> <p><i>“Cross-border venture capital and the development of portfolio companies”</i></p> <p><i>Authors:</i> David Devigne (Vlerick Leuven Gent Management School), Tom Vanacker (Universiteit Gent), Sophie Manigart (Vlerick Leuven Gent Management School), Ine Paeleman (Universiteit Gent)</p> <p><i>Discussant:</i> Dominique Torre (Université Nice Sophia Antipolis)</p> <p><i>“Importance of the non-financial value added of government and independent venture capitalists”</i></p> <p><i>Authors:</i> Terttu Luukkonen (The Research Institute of the Finnish Economy), Matthias Deschryvere (The Research Institute of the Finnish Economy), Fabio Bertoni (Politecnico di Milano), Tuomo Nikulainen (The Research Institute of the Finnish Economy)</p> <p><i>“Impact of venture capital funding on enterprise productivity: the Italian case”</i></p> <p><i>Authors:</i> Anna Gervasoni (Università Carlo Cattaneo), Francesco Bollazzi (Università Carlo Cattaneo and Università e-Campus)</p> <p><i>Discussant:</i> Tommaso Minola (Università degli Studi di Bergamo)</p>
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July 1

9:00-11:00	<p>Session 5: Parallel sessions</p> <p>Parallel session 5.1 - Sala Gardenia: <i>““Hands on” policy: The role of public venture capital”</i></p> <p><i>Chair:</i> Mariana Mazzucato (The Open University)</p> <p><i>“Turning European new technology-based firms into “gazelles”: the role of public (and private) venture capital”</i></p> <p><i>Authors:</i> Luca Grilli (Politecnico di Milano), Samuele Murtinu (Politecnico di Milano)</p> <p><i>Discussant:</i> Dan Li (University of Hong Kong)</p> <p><i>“Assessing the impact of public venture capital programmes in the United Kingdom: Do regional characteristics matter?”</i></p> <p><i>Authors:</i> Federico Munari (Università di Bologna), Laura Toschi (Università di Bologna)</p> <p><i>Discussant:</i> Paul Nightingale (University of Sussex)</p> <p><i>“Venture capital-backing and public investor: Belgian evidence”</i></p> <p><i>Authors:</i> Yan Alperovych (HEC Management School – University of Liège), Georges Hübner (HEC Management School – University of Liège, Maastricht University and Gambit Financial Solutions), Fabrice Lobet (Université Libre de Bruxelles)</p> <p><i>Discussant:</i> Fabio Bertoni (Politecnico di Milano)</p> <p>Parallel session 5.2 - Sala Meridiana: <i>“Capital market imperfections and firms’ financial constraints”</i></p> <p><i>Chair:</i> Cristina Rossi Lamastra (Politecnico di Milano)</p> <p><i>“The Interaction between financial and human resource slack and its effect on venture performance: Evidence from European high-tech ventures”</i></p> <p><i>Authors:</i> Ine Paeleman (Universiteit Gent), Tom Vanacker (Universiteit Gent), David Devigne (Vlerick Leuven Gent Management School)</p> <p><i>Discussant:</i> Gaétan de Rassenfosse (The University of Melbourne)</p> <p><i>“R&D financing of start-up firms: How much does founders’ human capital matter?”</i></p> <p><i>Authors:</i> Yuji Honjo (Chuo University), Masatoshi Kato (Kwansei Gakuin University and Hitotsubashi University), Hiroyuki Okamuro (Hitotsubashi University)</p> <p><i>Discussant:</i> Itxaso del Palacio Aguirre (Imperial College London)</p> <p><i>“Financial constraints and firm dynamics”</i></p> <p><i>Authors:</i> Giulio Bottazzi (Scuola Superiore Sant’Anna), Angelo Secchi (Université Paris 1 Panthéon-Sorbonne, Università di Pisa and Scuola Superiore Sant’Anna), Federico Tamagni (Scuola Superiore Sant’Anna)</p> <p><i>Discussant:</i> Diego D’Adda (Università Politecnica delle Marche)</p>
11:30-13:00	<p>Session 6: Parallel sessions</p> <p>Parallel session 6.1 - Sala Gardenia: <i>“Would you like to dance with me? Matching processes of investors and firms”</i></p> <p><i>Chair:</i> Tereza Tykvová (Zentrum für Europäische Wirtschaftsforschung)</p> <p><i>“Selection of entrepreneurs in the venture capital industry: An asymptotic analysis”</i></p> <p><i>Authors:</i> Ramy Elitzur (The Rotman School of Management, University of Toronto), Arieh Gavious (Ben-Gurion University of the Negev)</p> <p><i>Discussant:</i> Cristina Rossi Lamastra (Politecnico di Milano)</p> <p><i>“Cherry picking or frog kissing? The matching process between venture capital and high-tech entrepreneurial ventures”</i></p> <p><i>Authors:</i> Fabio Bertoni (Politecnico di Milano), Diego D’Adda (Università Politecnica delle Marche), Luca Grilli (Politecnico di Milano)</p>

Parallel session 6.2 - Sala Meridiana: "*Human capital and financing*"

Chair: Federico Munari (Università di Bologna)

"Optimal syndication choices in venture capital investment: Understanding the role of skills and funds providers"

Authors: Dominique Dufour (Université Nice Sophia Antipolis), Eric Nasica (Université Nice Sophia Antipolis), Dominique Torre (Université Nice Sophia Antipolis)

Discussant: Tom Vanacker (Universiteit Gent)

"Pecking order theory extension and the role of human capital in new technology based firms. Evidence from the Kauffman Firm Survey"

Authors: Lucio Cassia (Università degli Studi di Bergamo), Tommaso Minola (Università degli Studi di Bergamo),

Discussant: Terttu Luukkonen (The Research Institute of the Finnish Economy)

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