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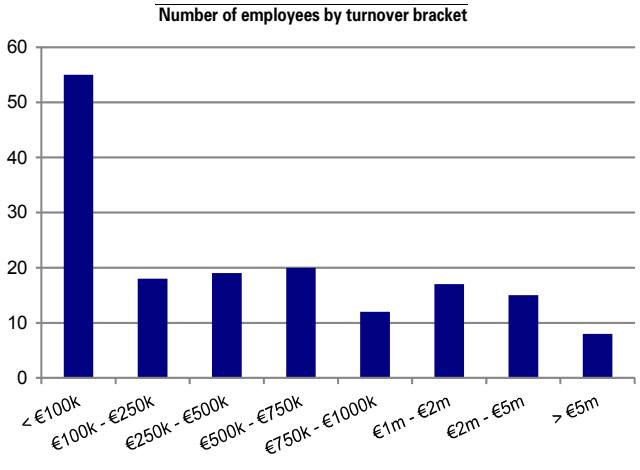
Gauging the impact of the french public seed-fund programme launched in 1999

- Technology firms' creation requires specific financing tools to take into account the high level of risk associated with their activity. "Tech" start-ups could not significantly rely on bank funding and generally turn to sources such as the entrepreneur's family and friends ("love money"), business angels, or investors who have pooled their capital in funds run by management firms. Seed-funds represent the first stage of capital investment. They provide support to firms with high growth potential-often with a strong technological component.
- In the late 1990s, France launched a public support programme for new technology firms to promote the development of a French seed-fund sector. In this issue of Trésor-Economics, we present the first public assessment of the 1999 seed-fund programme as of end-2011. This allows us to highlight some useful recommendations for current and future programmes.
- The programme has helped to build up the French seed-fund sector by setting up new management teams as well as seed funding dedicated units in the existing ones. By the end of 2011, the 204 seed-funded companies had created more than 1,700 jobs. Three of them had gone public, 31 had been sold to industrial firms and 13 had been sold to financial investors.
- The excessively detailed specifications imposed on management teams have had a negative impact on the programme's financial return. However, the policy recommendations based on this first experience of public support have been taken into account for later government programmes such as FSI-France Investissement and the National Seed Fund (Fonds National d'Amorçage: FNA), which was set up as part of the "Invest for the Future" programme.



Source: DG Trésor calculations using data from seed funds.

MINISTÈRE DES FINANCES ET DES COMPTES PUBLICS

MINISTÈRE DE L'ÉCONOMIE DU REDRESSEMENT PRODUCTIF ET DU NUMÉRIQUE

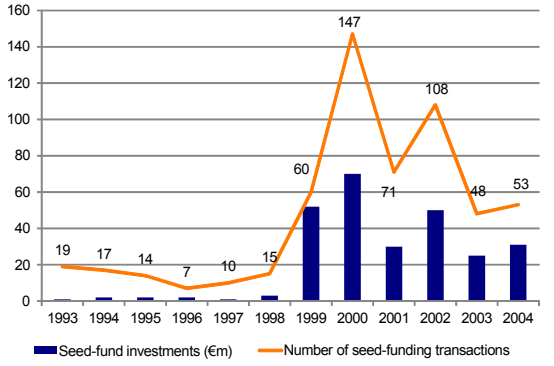
1. In 1999, the French government launched a programme to support seed funds. The goal was to foster the creation of innovative technology firms able to develop commercial applications for public research projects

Seed capital provides funding for business projects in their early and often pre-commercial stages of development. Therefore, they represent the first step in the broader process of venture-capital financing, which supports young innovative firms with strong growth potential until they become profitable. Seed capital differs from other support methods such as incubators and subsidies because it focuses on generating financial value from the seed-funded company for the capital investor. For this purpose, venture-capital companies and firms managing venture-capital funds-acting as intermediaries between companies and equity providers-use their specific skills (financial, managerial, technical and other) to increase the financial value of the companies that belong to their portfolio. They mainly reimburse investors through capital gains resulting from sales of their shares in the new firms and sometimes through interest on financial instruments called quasi-equity.

1.1 In 1999, seed funding was considered as the weak link in the business-creation financing chain

In the late 1990s, the financing of innovative young firms grew at a spectacular pace, driven by the good results achieved in the United States. Those were largely due to the advent of the "new economy": NASDAQ capitalisation more than tripled between October 1998 and March 2000 and by 1997, the five-year internal rate of return (IRR)[1] on venture capital had reached 31.4%[2].

Chart 1: Seed-capital investment in France, 1993-2014



Source: AFIC annual report on investment capital.

How to read this chart: The y-axis shows total annual seed-fund investments (€m). The figures on the curve show the number of seed-funding transactions.

France benefited from this positive climate. Capital investment fund-raising rose tenfold between 1997 and 2000, and the success of the new market seemed likely to last[3] . Even the segments covering the initial stages of business creation took advantage of this situation, in terms of seed funding raised and invested. However, the sums actually invested in the early stages remained very low. In 1998, seed funding (by members of AFIC, the institution representing French private-equity investors) accounted for only 1% of the total number of investments and 0.1% of the invested sums.

Moreover, great expectations were put in innovative and high-tech companies as growth leaders. They were considered as offering above-average development potential, and creating three times as many jobs as other firms[4].

1.2 The programme aimed to support the expansion of seed funds closely linked with public-research incubators and research organisations

Financed by the revenue of the France Télécom initial public offering, the 24 March 1999 call for bids was a part of a broader plan to promote public-private research collaborations. The Ministry of Education, Research and Technology and the Ministry of the Economy, Finance, and Industry invited tenders from research organisations for a project entitled "Incubation and seed funding for technological firms" with a total capitalisation of €300 million, of which €150 million was devoted to seed funds 'creation. The goal was to promote the creation of innovative technological firms able to develop commercial applications for research that was conducted in public laboratories. Specifically targeted areas were "information and communication technologies, multimedia technologies-especially in the field of education-biotechnologies, new materials, micro-technologies and technologies related to environment, quality and safety". At this time, some research agencies such as INRIA and INRA began to support start-ups by establishing business-development units[5] or subsidiaries. However, universities and most of the other research organisations-which, for example, did not have incubators-did not engage in such promotion.

The seed-funding segment was explicitly defined in the tender specifications as "equity funding of technology firms that are at the start-up stage, display strong growth potential, and do not yet have a product available for sale or have not completed the development or qualification phases for their technology". The selected seed funds were required to invest 75% of their capital in this type of firms. The specifications also spelled out the desired investment strategy: "Such a fund may contribute to the later growth of firms that it has supported since their creation, but its mission is not to increase its equity share in the same firm or to invest in a firm whose financial basis already includes investors (whether industrial companies or venture-capital professionals). The fund shall aim to sell its shares when new investors become shareholders in the firms".

To ensure a professional management of seed funds specifications required private investors to hold a sthare of at least 30%, wile research organisations' participation could not be more than 40%.

1.3 The French government has invested some €22 million in eleven seed funds and seed-money companies, through firms promoting commercial applications of education and research

One of the programme's goals was to make transfers easier between universities and business firms. For this purpose, the French government invested *via* entities designed to promote commercial applications of public-private research collaborations. Such units included newly created incubators (as in the Auvergne region) and existing or newly established subsidiaries of public educational institutions (such as Telecom schools and the University of Lille Nord-de-France) or research

(1) Discount rate that cancels the net current value of financial flows.

(2) Hege, U. (2001), "L'évaluation et le financement des start-up Internet", *Revue Économique*, vol. 52, special issue, October, pp. 291-312.

(3) *Notes bleues de Bercy*, no. 158, 1-15 May 1999.

(4) Report no. 217 (1998-1999) by Pierre Laffitte, on behalf of the Cultural Affairs Commission of the French Senate, submitted 11 February 1999.

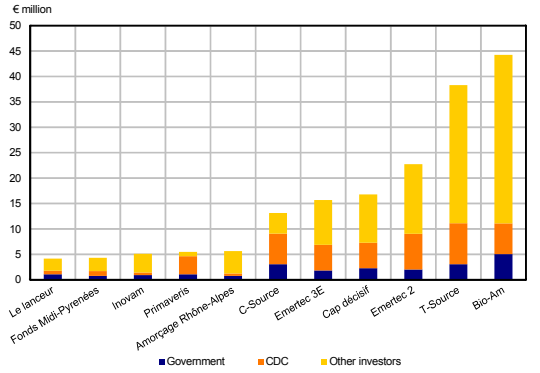
(5) "In early 1998, INRIA set up a subsidiary, INRIA-Transfert, which holds a 34% stake in the management company for the I-Source seed fund, which has already raised nearly FRF100 million" (French Senate Report no. 217).

institutions (such as CNRS, INRIA, INSERM and INRA). The government invested in a total of eleven entities, including five national funds affiliated to national organisations and six regional funds affiliated to a university.

Government's investment in these funds first ranged between €0.75 million and €5.03 million (i.e., between 8% and 26% of the total invested sums for the first round: see Chart 2). Including investments by *Caisse des Dépôts et Consignations* (CDC), the total public-sector share averaged 41%. While this figure may seem high, it is lower than the level reached today by the national seed fund, i.e., an average of just under 50% at end-2013[6].

The study described in this document aims to assess the economic impact and financial profitability of the seed-money support programme and to determine whether the public-policy goals have been achieved. It is based on an analysis of the firms' performance that are included in seed-fund portfolios, as well as on interviews with investors working in the management teams in charge of the funds covered by the programme. As the vehicles used in the programme are still active, financial and business performance data are not final.

Chart 2: Sums raised for seed funds at their establishment



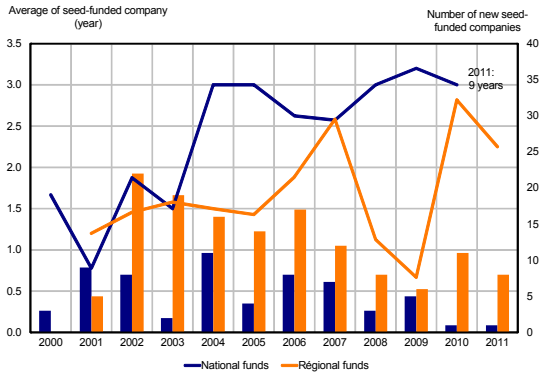
Source:DG Trésor calculations using data from seed funds.
How to read this chart: The regional funds (excluding Cap Décisif) raised less than €6 million in the first round, whereas the national funds raised at least €13 million. Cap Décisif, a regional fund, actually displays the characteristics of a national fund because of its target region, the Paris Region (Île-de-France).

2. Our study analyses the 1999 programme using quantitative data provided by management teams and qualitative information from interviews

2.1 The funds have financed young companies, but the average age of recipient firms at the time of the initial investment has increased with the duration of the programme

The programme was initially designed to finance young innovative businesses. While this was effectively the case at the creation of the programme, the age of new seed-funded companies has tended to rise over time. The average age increased from 1.7 years in 2001 to 3 years in 2010 for start-ups supported by national funds and from 1.2 in 2001 to 2.25 in 2010 for those supported by regional funds. The formed portfolio displays no positive correlation between the age of companies funded in the first round and the sum invested at this stage.

Chart 3: Average age of new seed-funded companies, by year



Source: DG Trésor calculations using data from seed funds.
How to read this chart: The lines show the average age of enterprises (in years) at the time of initial investment, by year (left scale). The bars (right scale) show the number of investments in that year. In 2009, the age of seed-funded companies fell, but this is not necessarily significant, since few investments were made that year.

2.2 Investment strategies have evolved. National management teams have chosen to focus on a smaller number of companies in order to maintain sufficient resources for providing long-term support. Regional teams, by contrast, have remained more faithful to the strategy recommended by tender specifications

As noted in §1.2, the investment strategy defined in the specifications fostered teams to not reinvest but rather to quit as soon as possible. By 2001, however, it was clear that venture-capital funds were not ready to acquire seed funds' shares in the new firms, and that the number of IPOs would not match the expectations of 1999. Some managers[7] decided to invest in a smaller number of firms to be present in later fund-raising rounds. This strategy has now been adopted by most managers of seed and venture-capital funds.

In other words, the national funds have, on average, taken part in the initial financing of fewer start-ups- than the regional ones-61 capital funding transactions versus 143 whereas they are usually bigger. However the amounts invested by national funds in each company have tend to be larger[8]: the average investment by national funds in the first round came to €546,000, or 3.4 times as much as the average €160,000 invested by regional funds. The national teams have also maintained larger reserves to cover further funding rounds. The average breakdown of total investments by national funds is 36% in the first round and 64% in the later rounds. For regional funds, the proportions are 55% and 45% respectively.

2.3 A high survival rate for firms in the seed-capital segment

Out of the 61 companies[9] funded by national funds during the period, 40 were still operating[10] in late 2011 according to the Commercial Court Registry, i.e., a survival rate of about 65.5%.

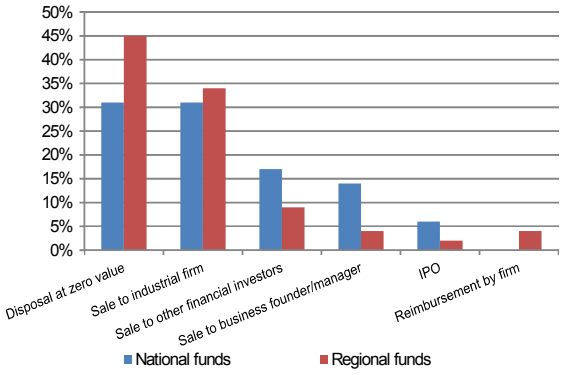
(6) Investments by the National Seed Fund (Fonds National d'Amorçage: FNA) are capped at 60% of total funds raised.
(7) Principally the managers of the national funds and Cap Décisif.
(8) At the first closing, the national funds had raised €134 million and the regional funds €47 million.
(9) Of which 60 are independent companies.
(10) Four of the companies have been placed under receivership.

This figure should be compared with the 31% proportion of failures (disposals at zero value) observed by fund managers. The gap between the two rates-65.5% registered by the commercial courts and 69% by managers-consists of firms that have been divested by fund managers (through a sale to the firm's manager, for example) and have subsequently failed (this concerns two firms). Out of the 133 companies[11] in which regional funds invested during the period, 93 were still operating[12] at end-2011, i.e. a survival rate of 70%. We observe a similar gap between data sources for regional funds, with fund managers reporting an effective survival rate of 76%.

2.4 Contrary to expectations, most divestments consist of sales to industrial firms, ahead of sales to other financial investors. Only three firms launched initial public offerings

The tender specifications assumed that most divestments by seed funds would be financial ones, consisting of sales of equity shares to other financial investors (see §1.2). The most common "positive" divestments (i.e., excluding failures) were sales to industrial firms, followed by sales to other financial investors (Chart 4). We also note three IPOs, of which two were financed by the same seed fund.

Chart 4: Fund divestments by type



Source: DG Trésor calculations using data from seed funds.

2.5 The study finds a wide disparity in fund performance and a high sensitivity of total income to the performance of three firms

By end-2009, seed-funded companies had created at least 1,059 jobs[13] and realised a total turnover of €184 million. Between end-2009 and end-2011, the average number of employees per firm rose from 15 to 24, and average turnover from €1,086,000 to €3,652,000. However, the wide disparity in income among the firms should be emphasized as three firms generate over €10 million in turnover. Without these three firms, average annual turnover in 2011 would only be €1,277,000 and the average number of employees 17.

Box 1: What are the three listed companies (at end-2011) and what have they become since they went public?[a]

The three firms have been awarded the OSEO Entreprise Innovante label.

Sequans Communications

The company was the market leader in wireless semiconductors for WiMax technology in 2010-2012. Since April 2011, Sequans Communications shares have been listed on NYSE Euronext in New York. At end-2011, the company announced a slowdown in the WiMax technology market. The announcement caused a sharp drop in the share price, which had doubled in the weeks following the IPO. At 31 December 2012, Sequans Communications employed approximately 160 people.

MEMSCAP

Memscap designs, produces and sells components, modules, systems and solutions related to micro-electromechanical systems (MEMS). Founded in 1997, the company has been listed on Euronext since 2001. The number of employees has considerably varied since the firm's creation: "MEMSCAP has since enjoyed a strong growth. Its workforce rose from 35 at end-1999 to 256 at 31 December 2002, before decreasing to less than 200 at end-2003, 90 at end-2010 and 76 at 31 December 2012." (2012 Annual Report).

DBV Technologies

According to its website, DBV Technologies is "focused on the development of innovative products for the diagnosis and treatment of food allergies" using VIASKIN®, "a non-invasive delivery system that utilizes electrostatic forces to present and deliver active compounds to the epidermis of the skin." The company currently employs about 42 people.

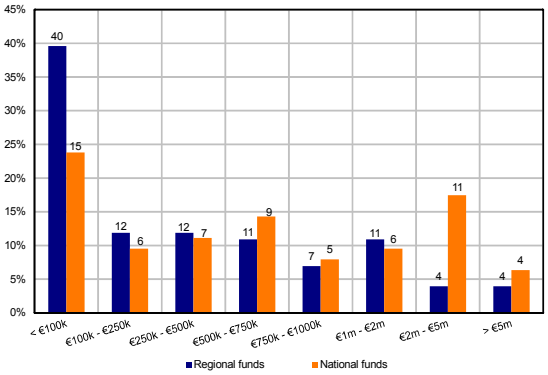
a. Two companies have gone public since end-2011: Erytech Pharma (funded by Cap Décisif) and Nanobiotix (funded by Amorçage Rhône-Alpes and Cap Décisif).

(11) For which we were able to obtain information from the Commercial Court Registries website.

(12) Four of the companies have been placed under receivership.

(13) As these are high-growth technology companies, the date of data extraction has a substantial impact on observed performance. To overcome this difficulty, we have adopted two different methods for collecting business data on seed-funded companies: (1) extraction of data from the FARE database for seed-funded companies still in business at 31/12/2009; (2) manual collection of the latest publicly available data [at 31/12/2011] from the Commercial Court Registries website. As the data collected at 31/12/2011 are incomplete-since not all the firms release their accounts-it is preferable to use average net income rather than cumulative performance as a benchmark for analysing the figures. The cumulative data are therefore provided for notional purposes only.

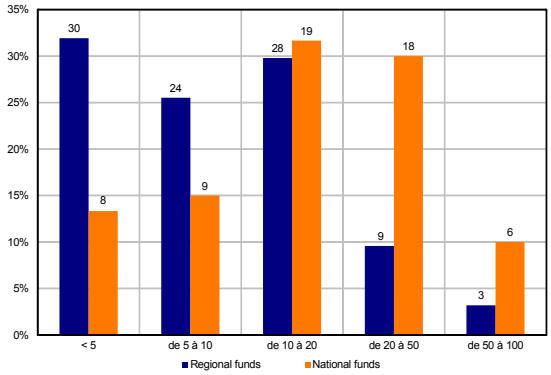
Chart 5: Breakdown of number of employees by turnover level at 31/12/2009



Source: DG Trésor calculations using data from seed funds.

How to read this chart: The y-axis shows the share of firms in the category in the total number of surviving firms at 31/12/2009. The figures on the bars are the number of firms.

Chart 6: Breakdown of number of employees by average workforce level at 31/12/2009



Source: DG Trésor calculations using data from seed funds.

How to read this chart: The y-axis shows the share of firms in the category in the total number of surviving firms at 31/12/2009. The figures on the bars are the number of firms.

Regarding the business performance of seed-funded companies, the findings reported in Box 2 may seem ambivalent but are consistent with the literature. In the short run, innovative firms do not necessarily outperform non-innovative firms in terms of job creations or turnover growth, and their growth is more dependent on macroeconomic conditions.

Furthermore, there exists significant differences in performance between companies funded by national funds and those funded by regional funds. These gaps do not seem related to the year of creation or the activity sector of the companies financed by the two categories of funds. The average number of employees in companies supported by national funds was 20.3 at end-2009 versus 11.9 for companies backed by regional funds; average turnover was €1,580,000 and €843,000 respectively.

Table 1

	National funds	Regional funds	Significant difference at 10% confidence limit
Average turnover in € at 31/12/2009	1 583 116	842 809	Yes (4%)
Average turnover in € at 31/12/2011	4 339 909	2 861 054	Yes (6%)
Average net income in € at 31/12/2009	−1 363 171	−626 783	Yes (3%)
Average net income in € at 31/12/2011	−749 080	−339 245	Yes (3%)
Average number of employees at 31/12/2009	20.3	11.9	Yes (0.1%)
Average number of employees at31/12/2011	30.5	20.6	Yes (2%)

Source: DG Trésor calculations using data from seed funds.

How to read this table: The significance of the difference is estimated using a Student's t-test.

2.6 The aggregate financial performance of the national and regional funds measured by net internal rate of return (IRR) was negative at end-2011

By end-2011, 95% of the subscribed capital had been called up by managers, and most seed funds had begun divesting. However, the funds have kept many companies in their portfolios. As a result, the funds' financial performance remains largely driven by the book value of the shares they still hold. Capital investment companies-unlike venture-capital funds-are not required to get a half-year certification of their portfolios' fair value. As a result, they can book limited provisions in their accounts, which tends to overstate the performance of this sub-portfolio.

The national funds considered in this study posted an aggregate net IRR of −11.3% at end-2011. The aggregate investment multiple[14] was 0.57, of which 40% was realised. The aggregate IRR of the six regional funds came to −2.8%. Their investment multiple was 0.90, but more than 80% of this value is based on the estimated residual value of the companies remainin in their portfolios.

(14) Also known as Total Value to Paid In [capital] (TVPI), which is the sum of Distributions to Paid In (DPI) and Residual Value to Paid In [capital] (RVPI).

Box 2: **Economic analysis of seed-funded company performance**

An economic assessment of the seed-fund programme's effectiveness would require a relevant counterfactual. However, the very small number of strictly private seed funds in the French venture-capital market, idoes not allow to build a satisfactory control dataset. To overcome this difficulty, we have taken the business performance of companies in which the programme's funds have invested and compared it with diffrent samples. We first carried out comparisons without control, then controlling for the company's age and activity sector identified by the French APE code[a]a.

We have chosen to study four diffrent samples: a group of firms with no particular characteristics[b] that are potentially non-innovative, and three groups of technologically innovative firms receiving government support: (1) innovative firms funded by an innovation-devoted investment fund (Fonds Commun de Placement dans l'Innovation: FCPI); (2) firms eligible for funding from the "Young Innovative Firms" (Jeunes Entreprises Innovantes: JEI) programme; (3) firms taking part in a national contest to fund innovative business creation.

The lack of data and the methodology used do not enable us to distinguish between the "selection" effect[c] and the "monitoring" effect[d]. Consequently, our regressions do not attempt to identify a causal relation but merely to provide a more precise statistical observation of the business performance of seed-funded companies.

- **Comparison with firms lacking distinctive characteristics**

Our comparisons reveal no effect due to selection of firms by funds. The seed-funded companies do not register stronger growth in terms of turnover and job creation than firms in the control sample when we control for the age and sectors of the companies. This analysis concerns only firms that remain operating and therefore does not take into account the survival rates of both samples[e]. Moreover, the control base includes all types of firms that present similar characteristics and not only the innovative ones..

Table 2

	Total funds	Total control	Signficant difference at 10% confidence limit
Average turnover 31/12/2009	1 086 195	747 242	No (12%)
Average employees 31/12/2009	15.46	11.44	No (14%)

Source: DG Trésor.

How to read this table: The significance of the difference is estimated using a Student's t-test

- **Comparison with firms eligible for JEI programme support**

Seed-funded companies create significantly more jobs than firms eligible to the JEI support, even when we control for the age and sectors of the companies.

In contrast, by end-2009, the difference in average turnover, while favour of seed-funded companies, is not significant.

Table 3

	Total funds	Total control	Signficant difference at 10% confidence limit
Average turnover 31/12/2009	1 086 195	1 134 492	No (97%)
Average employees 31/12/2009	15.46	10.74	Yes (2%)

Source: DG Trésor .

How to read this table: The significance of the difference is estimated using a Student's t-test

- **Comparison with firms taking part in the national contest to fund innovative business creation**

Seed-funded companies have significantly better results, in terms of jobs and turnover, than firms taking part in the national contest to fund innovative business creation, even when we control for the age and sectors of the firms.

Table 4

	Total funds	Total control	Signficant difference at 10% confidence limit
Average turnover 31/12/2009	1 086 195	657 784	Yes (10)
Average employees 31/12/2009	15.46	7.97	Yes (1%)

Source: DG Trésor.

How to read this table: The significance of the difference is estimated using a Student's t-test

- **Comparison with firms funded by an innovation-oriented investment fund**

Seed-funded companies do not perform as well as firms funded by an innovation-oriented investment fund (Fonds Commun de Placement dans l'Innovation: FCPI). By end-2009, the differences in the average number of employees and turnover between the two samples were significant, even when we control for the age and sectors of the firms[f]. However, two points need to be emphasized. First, unlike firms supported by the JEI programme, FCPI-funded companies may have been selected later than seed-funded companies. Second, within the same sector, FCPI-funded companies may have been selected in business activities offering a faster return on investment, i.e., less innovative or less technology-intensive activities. Unfortunately, as we lack information on company age at the investment date, we cannot determine whether the observed differences in performance are due to a better performance by fund managers or higher-quality information at the investment date[g].

a. By introducing binary variables.
b. Data from the FARE database, compiled by the National Statistical Institute (INSEE).
c. Which assumes that the funds select firms with better growth prospects.
d. Which assumes that support by the funds has a positive effect on the seed-funded companies' growth.
e. The 3-year survival rate for companies started in 2006 is higher in our sample of seed-funded companies than for the average of French companies, at 78.5% versus 65.9% respectively (SINE survey by INSEE). However, because of the small number of observations in our sample and the cross-sectional data structure, we cannot draw definitive conclusions on this point.
f. Respectively €1,086,000 versus €3,419,000 in turnover and 15 versus 29 jobs created.
g. Assuming seed funds invest significantly earlier and therefore, in theory, with less information on the firm's future performance.

3. Public policy recommendations

Is seed capital provided by "pure" entities the right way to fund start-ups? There exists indeed, other possible models: support from business angels; capital-investement funds focused on specific sectors that pool risks by-investing at every stage of development and able to supervise start-ups until they get a market value; government subsidies; and support for mechanisms promoting the commercial application of research[15]. The literature[16] does not allow us to determine which model-specialisation by sector or by segment-is superior to the other. Some studies[17], however, show the lack of impact of specialisation by segment on profitability, in Europe or the United States. Our study does not enable us to draw a conclusion on this point .

Box 3: **Public support for seed capital today**

The initial feedback has largely discouraged private investors, particularly institutions. They are very reluctant to invest on this segment-and when they do so, it remains on a modest scale, for example as part of the national seed fund.

On the positive side, the programme has unquestionably shaped the seed-capital environment in France. It has helped to promote the emergence of seed-funding teams. Four management companies have been set up, and seed-funding units have been established in other organisations. As our study reveals, these teams have paid a high learning cost but most of then have created successor funds or increased the capital of their venture-capital company (with one exception) and implemented strategies better suited to equity investment in young innovative firms.

Our analysis has highlighted not only the strengths but also the limits of the earlier programme, which the new public seed-funding support programme (Fonds National d'Amorçage: FNA) takes into account. The FNA has been set up as a part of the "Investments for the Future" Programme. Like its predecessor, it invests not directly in companies, but in funds. With an endowment of €600 million, it is managed by BPI-France and will invest in 25-30 funds. It aims to contribute to the emergence of innovative SMEs in sectors defined by the national strategy for research and innovation. The agreement defining its mode of operation took into account the lessons learned from the first programme.

It is important to properly incorporate the public support mechanism into its ecosystem. The first seed funds were expected to support technology transfers from public research laboratories to the economy *via* business start-ups. In practice, however, they soon diversified search-to all sources of young firms, including incubators, word-of-mouth, and participation in competition juries. This shift was driven by two factors: first, a shortage of relevant projects from laboratories; second, the difficulty in identifying relevant projects in laboratories because they were often too technology-oriented. There was probably a lack of interface to allow funds to access public research projects because of the cultural gap existing between the research area and the business world In France, this role has been assigned to 10 "technology transfer acceleration companies" (Sociétés d'Accélération de Transferts de Technologies: SATTs), that have created in 2010.

The prospects for exiting a programme must be properly assessed. A public programme must therefore avoid undermining its own profitability by preventing any further funding. Accordingly, when launching a seed-funding mechanism of the fund-of-funds type, it appears essential to make sure that new firms could enter the venture-capital or capital-investment market to in the later stages. This can be done by promoting well-structured and efficient industries. Without such players, one should also examine whether it is worth supporting young firms in sectors where few or no potential European industrial buyers are present. An improved local integration should also be induced to prevent or limit the number of start-ups' exits. It would be truly regrettable if further funding needs of firms supported by a public programme could not be met by european financial players, adedicated market, or industrial firms.

Seed funding should back projects that are technologically mature enough for post-investment support to concentrate on value creation. Most of the projects supported were insufficiently mature in technological terms and lowered funds' financial performances. The programme had a distinct technological bent and did not take sufficiently into account business spirit and the products manufacturing Companies were often set up before technological research was completed, and well before the founders had a precise idea of its potential applications and of a business plan carry them. While the programme had an honourable loss ratio, it did not effectively foster start-ups: almost all the firms that remain operating have fewer than 40 employees[18]. Our study does not allow us to determine whether specific support in the early phases would have enabled some firms to grow faster. Such support may be necessary in certain sectors such as the digital industry, where network effects could be the deciding factor in the technological adoption.

Doryane HUBER, Henry DELCAMP, Guillaume FERRERO

(15) Such as IT-Translation. Established at the initiative of INRIA and CDC Entreprises, IT-Translation is an entity for the commercial application of research via business creation that combines incubation and funding. In exchange, IT-Translation acquires a stake as the firm's co-founder.

(16) By specializing in a given industry or development stage, a venture-capital company may gain a better understanding of the distinctive features and complexities of that industry or development stage (De Clercq et al., 2001; Manigart et al., 2002; Bonnet et Wirtz, 2011). De Clercq et al. explain that by limiting the number of development stages in which it invests, a venture-capital company can acquire a more specialised knowledge of the complexities inherent in a given stage and thus manage the investments for this stage more effectively. Hege et al. (2009, p. 14).

(17) Hege et al. (2009).

(18) The data do not take into account the start-ups acquired by other firms, but the interviews lead us to assume that, in principle, none of the acquired companies has had a significant impact on the purchaser industrial firm.

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