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Relationship between private and public investors: lever or hindrance to innovation.

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Abstract

This paper aims at examining the determinants and the consequences of venture capitalists' relationship on innovation. By comparing interaction between private and public actors we attempted to verify the existence of crowd out phenomenon. According to a literature review, we presented the main characteristics and proposed a definition of the crowding out effect. To complete this study we have conducted semi-structured interviews in France based on a thematic content analysis. The results show that cognitive exchanges between private and public investors constitute a factor of convergence resulting in a productive collaboration. However, some limits of cognitive conflicts can lead to a crowding out effect of private or public investors. According to these results the relationships between private and public venture capitalists tend to have a positive role for innovation and its development in France.

Key Words: Venture capital – Governance

JEL : G000 – H0000

Introduction

The Venture capital was born in the United States of America after the World War II. It constitutes a market where supply and demand represent *“the desire of investors and entrepreneurs, to place money into venture capital funds or to attract investment in their firm”* (Gompers and Lerner; 1998).

Its development was made possible by the spread of norms and values. Among the main instigators, the Silicon Valley and the N.V.C.A (National Venture capital Association, 1973) created professional references to share. The first legal terms in VC agreements (Suchman, 1995) and the definition of a professional behavior (Bruton; Fried; Manigart, 2005) were part of it. That resulted in the institutionalization of the American venture capital industry in the 80's (Reiner, 1989).

To export a similar market, VC managers attempted *“to build European industry with the same normative institutions”* (Manigart, 1994). Despite similarities, differences between countries appeared in the venture capital expansion.

According to an institutional perspective (appendix A – Table A) Burton, Fried and Manigart (2005) suggested to collect these differences and similarities. Scott (1995,a) identified and clustered them into three groups: - normative - regulatory and - cognitive. These *“institutional forces”* highlighted disparities in the industry but also on venture capitalists' behavior (Busenitz & al, 2000; Wright & al, 2002). In other words this expansion was built through institutional influences and social interaction (Berger and Luckmann, 1967).

Institutional effects underline disparities across countries between private and public VC intervention (La Porta & Lopez, 1998, 2000). For them, venture capital embodies a mean to answer questions such as returns, employment and growth. But one of the major issues remains innovation development through venture capital financial intermediation. (Hellmann & Puri, 2000, 2002; Kortum & Lerner, 2000; Da Rin & al, 2006). That is why, in some countries, VC industry is characterized by a direct and an indirect support from governmental policies (Leleux & Surlemont, 2003; Cumming, 2007; Brander & al, 2014). In this way, former studies tried to show if and how public intervention crowded out private investors (Spencer & Yohe, 1970; Aschauer, 1989; Leleux and Surlemont, 2003; Da Rin & al, 2006; Cumming and MacIntosh, 2006; Brander & al, 2014; Cumming & al, 2014).

Venture capital is also defined “*as the investment by professional investors of long term, unquoted, risk equity finance in new firms where the primary reward is an eventual capital gain, supplemented by dividend yield*” (Wright, 2002). In some extent, this definition highlights the importance of venture capitalists’ behavior. For Sapienza & al (1996) even if venture capitalists’ behavior present similarities, differences are observed in early stage venture capitalists’ relationship. This brings to light possible interactions consequences on innovation funding and development.

One of them could be the crowding out effect. For main studies, the existence of this phenomenon finds its origin in regulatory or normative explanations. Introduced in the literature as an eviction of private investors from public intervention (Spencer & Yohe, 1970; Aschauer, 1989), it remains an uncharted territory. Especially with regard to cognitive aspects and interactions between venture capitalists.

We propose in this paper to consider crowding out and interactions effects on innovation. Using the agency theory and a conflict-based approach, we will attempt to see if relationships between private and public venture capitalists are a lever or a hindrance for innovation.

The original aspect of our study is to conduct in France a qualitative approach, based on semi-structured interviews of venture capitalists. France presents an interesting venture capital industry, which has been developed within a logic of innovation (Geoffron, 1991; Stévenot, 2005). It also remains a country with few studies concerning venture capitalists’ relationship effects related to innovation.

In this study, the link between innovation development and venture capitalists’ interaction appears as an important issue for institutions, governments, and VC industry. The principal contribution is to suggest a definition of the crowding out effect to the existent literature. The study of relationship between private and public actors may be useful in terms of governance and also for management contributions.

Our work is presented as follow: the first part is dedicated to a literature review based on the public authorities’ role to spur innovation through venture capital in France, following by a presentation of the crowding out effect. It allows us to present our theoretical framework and conflict-based approach dealing with our subject. A second part will introduce the methodology and the results.

1. Literature review and theoretical framework

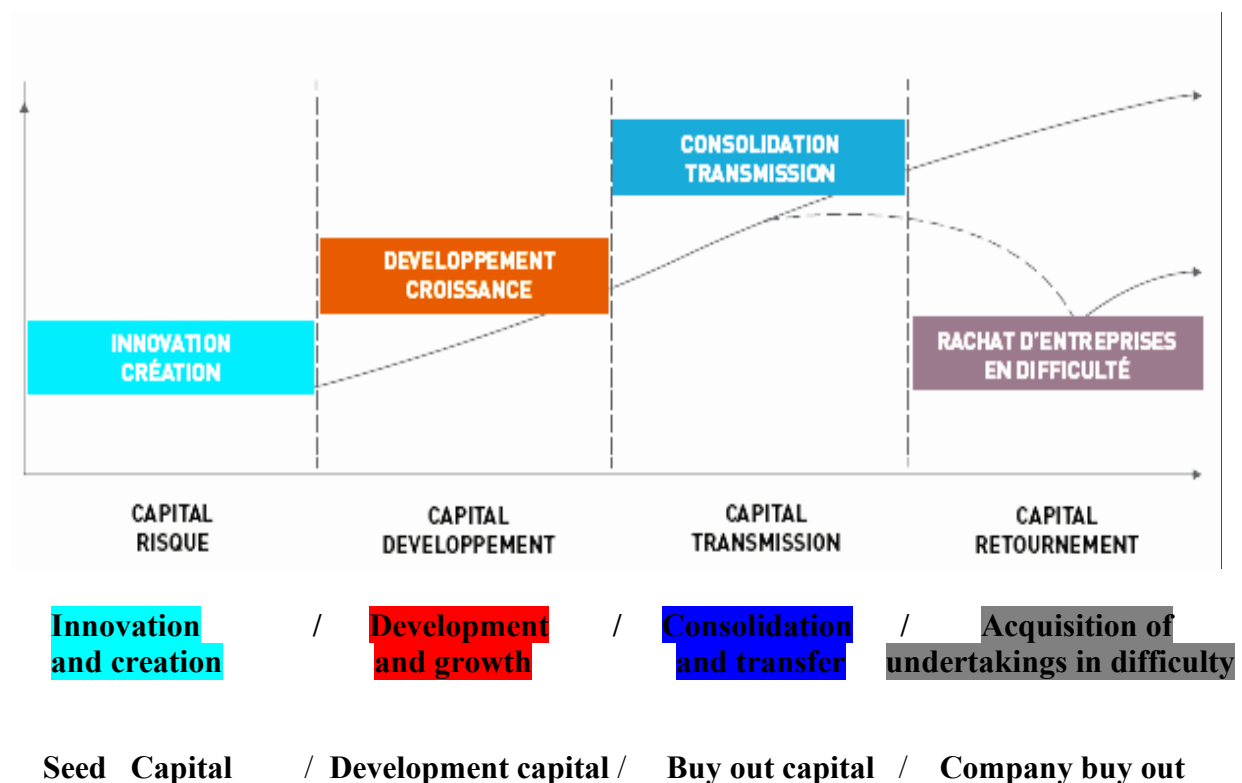
1.1. Public authorities, innovation and venture capital: historical review of France.

Venture capital supports companies with limited cash flow, presenting an innovative and forward-looking project, which cannot be funded by banks (Black & Gilson 1998; Lerner, 2002).

This situation is made possible by professional and funding distribution of venture capital. As illustrated in the scheme below, they can be divided into four major stages: Seed, Early, Expansion and Later Stage (Ferrary, 2006; Pommet & al, 2012). Last stages indicate a “maturing process of the company” and a “decrease in the risk” (Ferrary, 2006).

Therefore, the above segmentation provides to VC the ability to support funding from start up to exit context. We can see that to finance a company at an early stage development, private or public investors should realize a risky long term and high-expected returns investment. However, some key elements are absent from this scheme. In fact, to fulfill and achieve this objective, experiences and networks are also essential (Hellmann & Puri, 2002; Bruton & al, 2004).

Scheme 1: Title: “ Distribution by activity for active members”



Source: AFIC 2012; Titre: « Répartition des membres actifs par métier ».

Many countries and governments have seen a significant interest in these various investment opportunities. But why have public authorities used such a process? Three reasons can be given:

- VC development can enhance the likelihood to see the number of investors and investments increasing in their country.
- *“To foster VC for achieving economic growth and job creation”* (Bottazzi & Da rin, 2002).
- *“VC is a form of financial intermediation particularly well suited to support the creation and the growth of innovative entrepreneurial companies”* (Hellmann & Puri, 2000,2002; Kortum & Lerner 2000; Da Rin & al, 2006).

Besides economic aspects, venture capital provided another argument: *“the success that VC achieved in the U.S.”* (Megginson,2004; Da Rin & al,2006). With influential multinational enterprise and the establishment of a technological showcase, this industry has shown its ability to be ahead in terms of innovation. The American model demonstrated that *“the involvement of venture capitalists increase with the degree of innovation pursued by a firm”* (Sapienza, 1992). For many countries, it became a model to replicate (Da Rin & al, 2006) using venture capital development as an “innovation accelerator“. Thus, Venture capital was seen as a mean to support innovation and to develop high-tech industries. According to Brander & al (2014), governments “have a rationale” to explain this situation, particularly when:

- *“Market failures can lead to a potential undersupply of innovation, then innovative firms are capital-constrained”*
- *“Market failures due to informational asymmetries cause adverse selection or moral hazard problem”* (Amit & Al, 1998; Hall, 2002).

According to specificities referred above, French case can be taken as an example. In the sixties, the government understood the significance to take part into venture capital. Notably to catch-up innovation and technological gap. The objective was to build a venture capital market *“ fostering the emergence of SMEs with high added value due to their innovative ability”* (Jégourel, 2014). In the seventies, the implementation of governmental policies then targeted small and medium-sized firms (Stévenot, 2001). The creation of ANVAR (national association for the promotion of research in industry) in 1969 and the SFI (financial companies for innovation) in 1972 also showed government’s ambitions to meet and complete supply and demand requirements for private and public investors.

For Poterba (1989), public policies are not only focused on direct investments. They can propose indirect investments through a wide range of fiscal policy “*representing one of the most important legal instrument to stimulate VC markets*” (Poterba, 1989; Cumming, 2005; Gompers and Lerner, 1998; Jeng & Wells, 2000). In 1983, the creation of tax benefit measures as mutual funds as *FCPR* (High-risk mutual fund investment), *FCPI* (Mutual fund for innovation, 1997) and *FIP* (Local investment funds, 2003) helped to support local and national initiatives. For public authorities, it represents a mean to avoid “a potential undersupply of innovation” and attract complementary investments (Brander & al, 2014). The opening of the new markets in 1997, the creation of DSK funds in 1998 and the introduction of the “Law on innovation and research” in 1999 have sent a strong signal to private investors. For example, between 1986 and 1998 the volume of investments in venture capital industry went up by a factor of 5.

French public authorities also built a national and regional public and semi-public network to support innovation. The *ANVAR*, the *BDPME* (*Bank for the development of small and medium-sized enterprises*) and *SOFARIS* (*Guarantee company for small and medium-sized enterprises*) have merged in 2005, 2010 and 2011 with *OSEO*¹ to achieve a total budget of more than 1,6 billion euros in 2010. In 2012, BPI group also merged with *OSEO*, *CDC*² enterprise, *FSI* (*Strategic investment fund*) and *FSI* region³. The whole of these groups provide specific support for developing innovative project through business creation. Government has also demonstrated its commitment since 1955 with *SDR creation* (*company for local development*), which were a strong local support for fast-growing companies. This alliance between research and industry and its technological innovation were a success given rise to large private and public sectors companies. Nevertheless, it is to be noted that in the early years of policy development process, some initiatives have failed due to an underdeveloped stock market. The positive role of innovation on the development level of venture capital (Romain & Pottelsberghe, 2004) has contributed to the VC institutionalization in France as a model to finance companies and innovation (Stéphany, 2001). Thus France presents a VC market with net returns over a long period and almost stable. The rate of return between 2005 and 2014 is 11,3% over 10 years. This profitability outperforms the Parisians stock market indices and

¹ Bank financing SME

² State bank handling official deposits

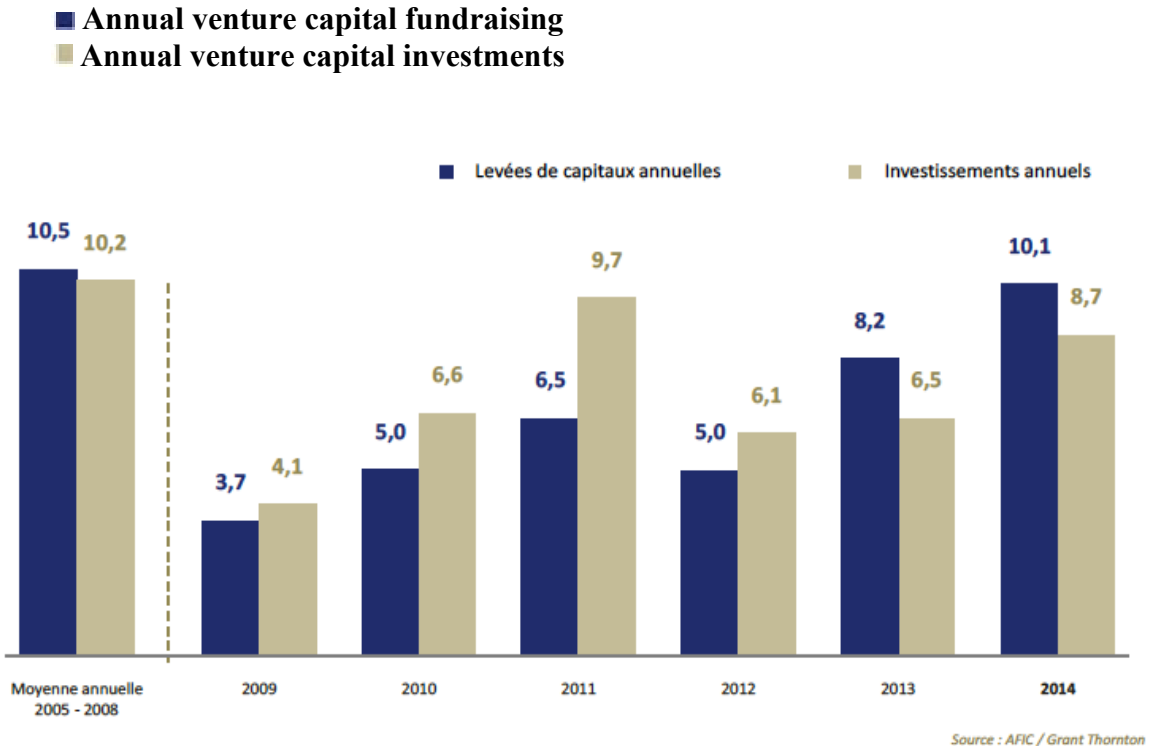
³ Local strategic investment fund

shows stability compared to the volatility in financial markets. Even though the bursting of the Internet bubble has slowed and changed some VC process.

France represents the second venture capital market in Europe behind the United Kingdom. Its fundraisings and amounts invested (Scheme 2, AFIC ¹) have increased by 24 % and 35% between 2013 and 2014 reaching 10.1 billion Euro and 8.7 billion in 2014 (75 % of these investments concern SMEs). As a whole, European countries try to recover pre-crisis levels in VC market (12,0 billion euro for fundraising and 12.4 billion euro for amounts invested). The uncertainty due to the financial crisis and new control process for high-tech and technology projects can explain this slow progress period. In comparison with American VC industry these European characteristics are accentuated by several factors as:

- Markets are less liquid in Europe (Schwienbacher, 2005).
- Syndications are used less frequently in Europe.
- “Young VC capitalists in Europe tend to monitor less” (Schwienbacher, 2005).

Scheme 2: Title: Fundraisings and investments in France between 2009 and 2014



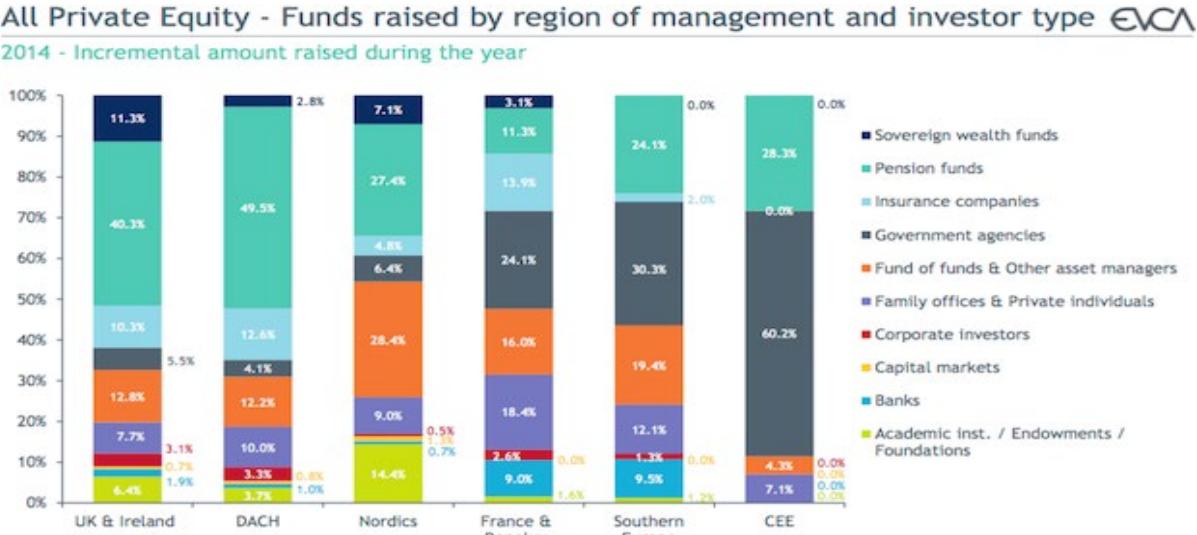
Source: AFIC/Grant Thornton, Rapport d’activité du capital investissement en France en 2014

¹ AFIC : The French Capital Investors Association

Another specificity from French VC market seems to confirm a preference for development and buy-outs activities since 2005. These operations represent 85% of total invested amounts in 2014 whereas 7% concern innovation ventures. This situation can lead to different explanations. First, the financial crisis has moved venture capitalists' behavior towards less risky investments to compensate financial losses. Added to this, the low risk aversion in France can find historical and cultural reasons (Stévenot, 2001). A complementary analysis of La porta & al (2000), have highlighted the impact on the industry development due to legal differences, notably between common law and civil law countries (Bruton & al, 2005). Finally, according to Lorenzi, (2004) cultural, legal and financial environments can explain the lack of business angels and private investors reducing early stage investments in the industry.

With only 3,500 business angels, France has much less independent investors than in United Kingdom (50,000). According to the EVCA¹ (scheme 3), in common law countries, these investors raise a large proportion of funds. It constitutes the main difference with France where public authorities and banks plays an important role with almost 31 % and 20% of

Scheme 3: Title: Funds raised by region of management and investor type



Source: EVCA/PEREP Analytics 2014, Statistics on fundraising, investments & divestments (Region²)

¹ EVCA : European Venture Capital Association.
² DACH: Austria, Germany Switzerland / Southern Europe: Greece, Italy, Portugal, Spain/ NORDICS: Denmark, Finland, Norway, Sweden/ CEE: Central Eastern Europe.

funds raised. This situation shows disparities between European countries. Even if norms were spread between American and European VC markets, the development of VC industry provides specificities in each individual country. As we can see in the scheme 3, U.K. and Ireland are close to the American model due to the strong presence of financial market and the role played by fiscal policy. Which can explain that larger funding amounts are allocated to early stage investments and innovation. On the opposite, in Central Eastern Europe the majority of funds are raised by government agencies. This may indicate a lack of professionalization in the industry. For Sapienza (2006), disparities between European countries can be diminished with the spread of knowledge and professionalization. In this configuration, the presence of public actors and the impact on innovation funding can be underlined.

French venture capital market can also be characterized by the presence of syndication. Even though syndication is more often used in the American industry (Bruton & al, 2005), *“the fact that venture capitalists jointly invest in project”* represents a particular interest for private and public actors. By sharing an investment, venture capitalists can also share the risk, knowledge and professional experiences (Bruton & al, 2005). For BPI France (Bpi France 2013), syndication has to continue to be developed in the country. It can be seen as a mean to improve the level of professionalization and innovation funding in the industry. For example, over half of all investments, between 2007 and 2013, in France, have been made through syndication reaching 53.9% against 30,3% in U.K. (European Private Equity Activity Data 2007-2013).

According to AFIC, one of the French VC industry perspectives is to increase the level of foreign capital. In 2014, this form of venture capital funding achieved the pre-crisis level. This progression should lead to a continuing improvement in 2015 and 2016 (AFIC). By the way, business creation and syndication has to progress in order to provide new opportunities and high expected returns to venture capitalists (Cumming et al, 2004).

By this historical approach, we can see the important role played by public authorities to support innovation through venture capital development. With the presence of a large public network, French VC industry tries to avoid other failures due to the lack of technological assessment, financial, entrepreneurship and industrial culture (Stevenot, 2001). In this way, direct and indirect public policies have allowed the institutionalization of French VC market. However, in comparison with common law countries we can see that less

independent and private investors can be related to less innovation funding and high-expected returns. In other words, this strong presence of public sector may have direct and indirect effects on private investors active role in VC industry.

In view of the consequences that this question may have, we can deserve a particular attention for a specific effect presented in the literature as the crowding out phenomenon.

1.2 Crowding out effect: Presentation and definition.

The extant literature presents crowding out effect as a result of public intervention. Public spending is characterized as the origin of this phenomenon (Aschauer,1989, Herrera & al ; 2014). Three different views of public spending define principal arguments resulting or not to an eviction effect. The below table (table B) summarizes these main lines according to the literature review (Aschauer,1989; Herrera & al, 2014). This table shows that direct and indirect public spending can act as a substitute or a complement to private investments (Aschauer, 1989, Herrera, 2014).

In the case of a substitution, direct intervention can lead to a “complete crowd out of private investments” (Aschauer, 1989, Cumming, 2013). Indeed, the government can “*compete with private investors for the same investment and discourage them*” (Cumming, 2013). For Herrera & al (2014), this type of direct involvement can generate “*an inadvertent market disruption through a potential misallocation capital*” creating a crowding out situation. Concerning the indirect intervention the literature presents two types of crowding out effect:

- a diminution of private active role.
- a complete crowd out of private investors.

This situation leads to another question: Does the crowding out effect correspond to a partial attendance of private investors or a complete absence of private actors? According to Cumming (2013), in some case, “governmental policy options are mixed”, then this question can appear as useless. However, if eviction effect is considered not only at a market level but also at the enterprise level we will see that this aspect remains important, notably regarding with specific governmental programs.

Table 1: Title: Effects of public spending on private investors:

Orientation	Neoclassical View ¹	Keynesian View ²	Equivalence View ³
Situation	Equilibrium between private and public agents.	Private and public agents are not in situation of equilibrium	Equilibrium between private and public agents.
Government spending effects	- Government spending can create a deficit.	- Government spending can create an increase in incomes.	- Government spending can create a deficit.
	- Government finances a part of this spending with debt creating high interest rates.	- High level of income has a positive effect on investor expectations.	- A deficit is followed by an increase in taxes or debt.
	- it raises the national rate of capital accumulation.	- It can raise the level of interest rates.	-Government budget as irrelevant in financial decisions.
Presence of a Crowding out effect	Yes, public spending acts as a substitute of private investors.	Not for all government. Public spending acts as a complement.	No effect on private investments and on private agent active role.
	→Substitution hypothesis.	→Complementary hypothesis.	→ Neutral hypothesis.
Consequences	-Discourage investments of private actors.	-Encourage investments of private actors.	- No effect on investments of private actors.
	- It involves a reduction on private capital spending.	-It involves an increase in investments.	- It involves a neutral attitude in consumption or saving from private agents.

¹ (David & Scadding , 1974; Heijdra & lightard, 1997; Ganelli, 2003)

² (Aschauer, 1989; Herrera & al , 2014)

³ (Bailey, 1962; Baro, 1988; Kormendi,1983; Darat & Suliman, 1991)

In the case of the complementary hypothesis, indirect and direct public involvement can be seen as a mean to provide more private funding in the industry. Direct interventions allow to “fill a capital gap” (Cumming, 2013; Brander et al, 2014) and to reduce informational asymmetries by “*helping underdeveloped markets or certifying the quality of funds*” (Leleux & Surlemont, 2003; Buzzacchi & al, 2013; Brander & al 2014). However, the Canadian and Australian evidence show that public involvement in different countries has not the same effect on private investors (Cumming, 2013, Herrera & al, 2014; Brander et al, 2014), creating an eviction effect or an additional presence (Leleux & Surlemont¹, 2003). In this way, the definition of crowding out effect and the finding of its existence can depend on measures used according to countries studied (Cumming, 2013). Thus, Da Rin et al (2006), have found that large governmental investments in Europe crowded out private investors. Whereas for Cumming (2013), the comparison between ratio and level measures used in this case has provided insignificant results given rise to a misunderstanding.

As a whole the literature does not necessarily mention when this effect is most likely to happen. This means that, the financing of a company by public investors at an early stage or a last stage might occur the same effect on private investors. Even if public authorities tend to support innovation, growth and job creation by funding early stage, they can also be present at latter stage. This situation might suggest that an eviction effect might occur at different stages.

Crowding out effect can also be defined at two levels: the market level and the enterprise level (brander & al, 2014). According to brander & al (2014), “*crowding out at the enterprise level means that companies receiving public support have less private funding*”. However, an eviction effect at the enterprise level does not necessarily reveal the same effect at the market level (Brander et al, 2014). If public intervention crowds out private investments in a company, this investment might still be done in the same market. Thus, a crowding out effect at the enterprise level does not necessarily correspond to an eviction effect at the market level.

Under this approach, if public investments might represent less private funding corresponding to a crowd out of private investors, it becomes possible to consider at the enterprise level, that private intervention might represent less public funding corresponding

¹ Seeding hypothesis is presenting by Leleux and Surlemont (2003) “*as the beneficial role played by public intervention by developing national venture capital industries.*”

to a crowd out of public actors. Thus, crowding out effect can be characterized as the result of public and private intervention allowing for less public or private investments.

This situation might take place at the market level. If the market level is presented as “*the enterprises in a particular industry in a particular year and country*” (Brander & al, 2014), then the crowding out effect of public actors might be the result of large financing of these enterprises by private investors. In other words a strong private presence might displace public actors at the market level or enterprise level.

In order to define the characteristics and the context of a crowding out effect we suggest the following definition: A crowding out phenomenon corresponds to a temporal effect arises from direct and indirect public or private intervention resulting as a partial or complete eviction of private or public actors at the enterprise and market level.

According to Hege (2001), the financing of innovation develops conflicts related to various factors “represented by the uncertainty linked to the activity funding” (Jégourel, 2014). In the following context and according to the crowding out definition we suggest verifying the existence of this phenomenon through venture capitalists’ relationships.

Insofar as the eviction effect is mainly presented as a result of public spending, what about relationships and its consequences between venture capitalists? Does the relationship can create an eviction of public or private venture capitalists? In this way, the study of interaction between venture capitalists might be another reason providing crowding out effect or a complementary presence favoring innovation and its development. The principal question raised is presented as follows:

In what extent relationships between private and public venture capitalists are a determinant of innovation and its development?

The question of innovation and its funding remain one of the main issues in the literature. To ensure its growth, interactions between venture capitalists appear as an essential part. It is important to understand the impacts that private and public relationship can have on innovation. Some of these impacts can be represented in the form of conflicts.

1.3 Conflict approach: Agency & cognitive conflicts

1.3.1. Agency conflicts and agency Costs

The innovation funding through venture capital reveals for venture capitalists a situation of uncertainty (Hege, 2001). The uncertainty generates interest conflicts arising from informational asymmetries between private and public venture capitalists (Jégourel, 2014). The uncertainty can be due to the risk assessment of an innovation project or to a lack of information, which can lead to adverse selection problem (Akerlof, 1970). After the funding period completed, some lack of skills and difficulties to control venture capitalists' actions may result in moral hazard problem. With regard to the interaction between private and public VC, this situation might result in crowding out of private or public investors.

According to the works done by Jensen & Meckling (1976), interactions between venture capitalists correspond to an agency relationship where conflicts will create agency costs. To limit interest conflicts and to reduce agency costs, governance mechanisms based on disciplinary concerns can be used. Some of those mechanisms can be made through a formal¹ way or an informal way (Stéphany, 2003). Thus, the objective is to obtain the convergence of interests between venture capitalists resulting in the sustainable value creation and in the efficiency of investments.

To reduce conflicts between venture capitalists different measures can be adopted. These measures will create agency costs, which can be divided into three categories: Monitoring costs, bounding costs and residuals costs. In the relationship between venture capitalists:

- Monitoring costs can represent control or incentives measures.
- Bounding costs can bring relevant elements providing a degree of certainty from the agent.
- Residual costs correspond to a reduction of the company value due to the drawing up of formal measures (contracts).

In the interactions between venture capitalists some conflicts can be due to the lack of experiences and professionalization. According to Bruton & al (2005), public investors are particularly affected by these characteristics. In that context, another issue related to the investment performance and efficiency can be raised. For Cumming et al, (2006) some

¹ Formal way: means in the terms of contract or agreement.

structures can bear high agency costs for low returns. This situation may result in a crowding out effect of private investors (Canadian Evidence, Cumming & al, 2006). Thus, the structuring of public presence will be a factor favoring or not the eviction effect (Avnimelech & Teubal, 2006). Interest discrepancies can be another source of conflicts particularly when public and private investors have different strategies regarding the risk assessment or the investment duration.

To avoid these conflicts, Charreaux (1997) proposed the following monitoring and incentives mechanisms (appendix B– Table B). This table concerns principally mechanisms for SMEs financed through venture capital funding. It presents two types of mechanisms: intentional and spontaneous according to the enterprise context (specific mechanisms) or the market context (non specific mechanisms). The relationships between private and public VC can be based on specific and intentional mechanisms as:

- The board of directors, which can be seen as an important mechanism for monitoring decisions and performance of the company. According to Bruton & al (2005), the board can create a link between investors and “individuals” who can provide help “*to overcome difficulties with outside forces such as regulators and resolve contract disputes*”. This network can constitute an important aspect to the firm (Pfeffer & Salancik, 1978; Bruton & al, 2005). By this way, Bruton & al (2005), underlines the importance of this “*type of board*” in countries with strong social networks and having a weak legal system. For Baker and Gompers (2003), companies’ boards of directors funded by venture capital are more active than others. In France venture capitalists are also more active in the boards. This situation is due to the intensification of control regarding financial risks and decisions in order to avoid financial penalties in the case of a bankruptcy.

- Financing rounds: Which can represent in venture capital the funding at different VC stages. In this way, venture capitalists can ensure a greater coordination in investments decisions by making the choice to continue to finance the project or not. This coordination can lead to a potential reduction of risk and a favorable situation for venture capitalists. The financing rounds may also concern the intensification of monitoring in a company. This situation depends on the enterprise and on the risk level of the funded project. For Sapienza and Gupta (1994), this context can appear when numerous discrepancies are present. In this case to reduce informational asymmetries, agency costs will be higher. According to the agency theory those costs will affect the company value.

- The shareholders' agreement: Which can represent the possibility to set agreements and contracts describing the main lines of the funded project and the company framework. Those agreements can avoid the presence of interest conflicts linked to opportunistic behaviors.
- The standing or reputation: Besides intentional mechanisms, spontaneous mechanisms can allow to respect firms contracts, avoiding some interest conflicts between venture capitalists in order to keep their reputation safe against legal risks.

Nevertheless, the above mechanisms can present some limitations. Even if they can bring some measures to reduce interest conflicts, they are not sufficient. For example the attempts to discipline venture capitalists in order to enhance enterprise value "*can produce substitution or complementary acts*" (Charreaux, 2004). Moreover, SMEs funded by VC industry present specificities through venture capitalists objectives and strategies, which can't be taken into account here. To overcome these limitations, cognitive theories will allow understanding if relationships between venture capitalists can go beyond an exclusively conflictual dimension.

1.3.2. Productive collaboration

Contrary to the contractual theories where value creation deals with interest conflicts resolution, cognitive theories will distinguish information from knowledge as a process of value creation. Information, in this case, can help an individual to evolve in his own thinking patterns with the change of its cognitive schemes.

According to Bruton & al (2005), private and public VC that will exchange information and experience for the same investment and for different funding stages, will increase their returns and performance (Gompers & al, 2007). Added to this situation, public venture capitalists that will syndicate with private VC will replicate similar private behaviors (Sahlman, 1990; Brander & al, 2014), using their experience and the professionalization for other investments. In this case the interactions between private and public venture capitalists tend to show that they can raise more fund and obtain a "*better exit than private venture capitalist alone or public venture capitalist alone*" (brander & al, 2014). These situations show that private and public venture capitalists may collaborate in order to

achieve their objectives. According to Sahlman, (1990), the lack of business experience from entrepreneurs or venture capitalists may be solved by the intervention of VC expert. This aspect shows that, some VC tends to share their knowledge and information, acting in a collaborative and productive approach. Interactions between venture capitalists according to a productive collaboration will give another image to the firm. The company can be seen as a source of knowledge. By this approach another question can be raised regarding with cognitive conflicts that might be created.

1.3.3 Cognitive conflicts and Cognitive Costs

As for interest conflicts, cognitive theories have to reduce cognitive conflicts even if they don't have necessarily negative effects. Indeed, the existence of different cognitive schemes can embody a source of innovation arising from the exchange of different ideas (Desbrières, 2005). According to the literature private and public venture capitalists can present discrepancies on innovation funding (Brander et al, 2014). If the objective is to create growth and employment for public actors, expected returns and risks are important aspects for private investors. In the relationship between private and public VC, these differences can lead to cognitive costs as mentoring. In this case, it seems that a unilateral decision can create not necessarily a crowding out but to a distrust between VC for others funding stages. On the contrary some of these conflicts can be overcome. According to Bruton & al (2005), by sharing same norms and value venture capitalists can adopt the same investment approach or strategy. By this way, private and public venture capitalists can also exchange ideas and create other cognitive resources. This situation will generate others cognitive costs. Thus, cognitive theories can find a particular attention with investments funding by venture capital. This framework of cognitive exchanges within the interactions between private and public venture capitalists can show a willingness of convergence from venture capitalists affected by a situation of uncertainty. According to this we can introduce the following research questions:

- 1. What are the rationales of convergence or collaboration between private and public investors?**

The convergence can correspond to the willingness of investor to impose its representation. This situation may provide financial, strategic and organizational information. According to a cognitive view, the convergence is associated to an exchange of individual and collective knowledge. This exchange can be the origin of an innovation source (Desbrières,2005). By this way, the investor can be socially and professionally recognized. Thus others investors can adopt these norms and values. This common position can lead to a phenomenon of collaboration. By seeking consensus and convergence social interactions can also lead to a breakdown. This situation is made possible by the uncertainty linked to informational asymmetries. A second research question can be presented as follow:

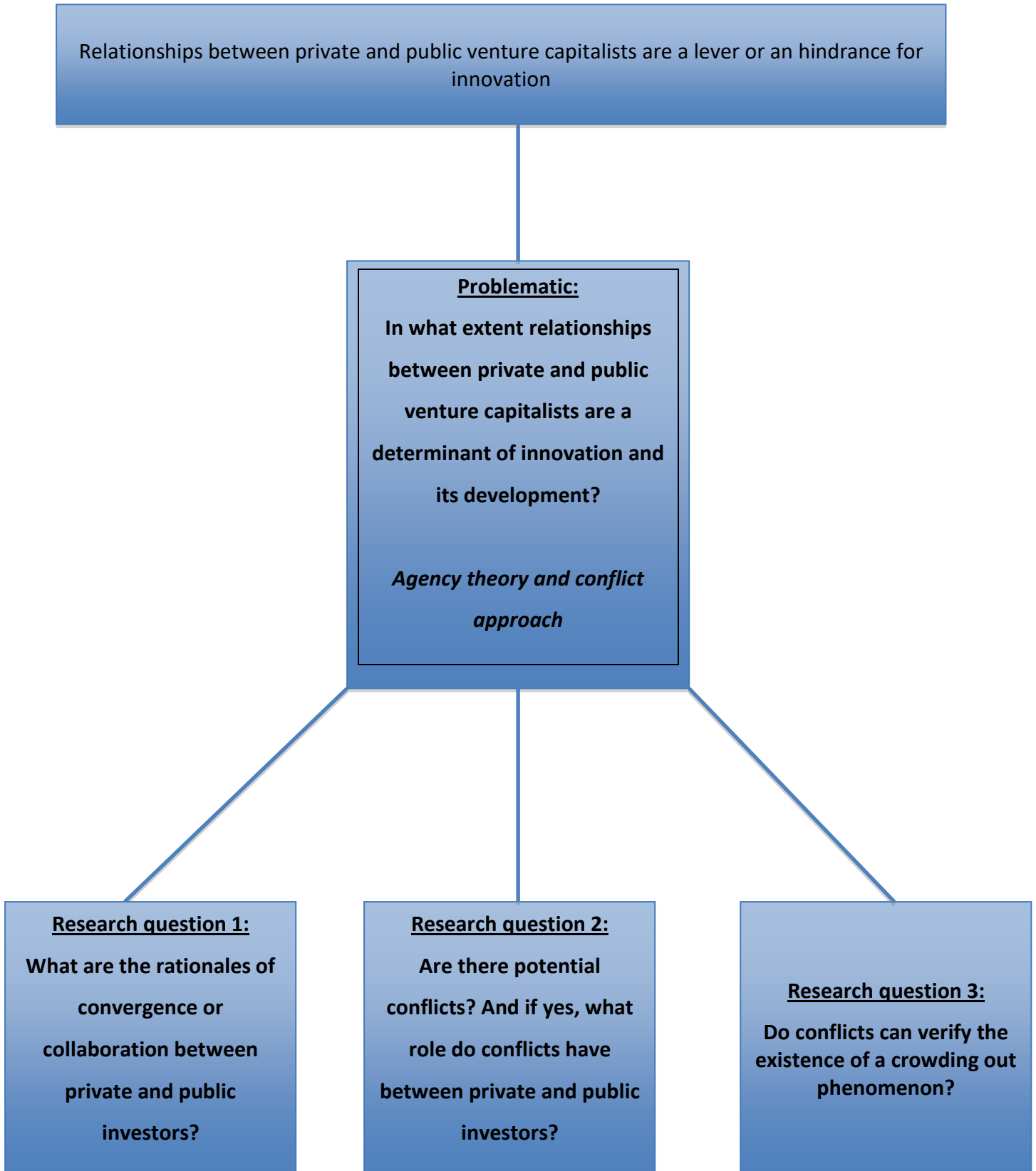
2. Are there potential conflicts? And if yes, what role do conflicts have between private and public investors?

Informational asymmetries between private and public venture capitalists will generate interest conflicts. To reduce these conflicts governance mechanisms can be used creating agency costs. Added to interest conflicts, cognitive conflicts appear as not necessarily negatives. They can provide the emergence of new point of view, ideas and representation models. Removing all the cognitive conflicts can be seen as not efficient (Charreaux, 2002b). In this way, a better direction seems to develop the exchange of cognitive schemes. This situation leads us to the third question:

3. Do conflicts can verify the existence of a crowding out phenomenon?

The resolution of interest conflicts with governance mechanisms lets appear some limitations. Thus some discrepancies between private and public investors will create higher agency costs to solve conflicts. To overcome this situation, cognitive theories suggest other types of intervention. By using other means like negotiation or mediation we may obtain a new cooperation between investors. The governance system is also able to overcome the initial terms of cooperation with the creation of knowledge and experience by solving conflicts. This aspect remains important in terms of strategy and management but also concerning collective cooperation.

Scheme 4: Research Model



2. Methodology and results

2.1 Methodology, data collection

The empirical part of this work is based on a qualitative analysis with semi-structured interviews conducted in France. These interviews concern three private and public investors and two business leaders of start-up. All these companies are based in the region of Lorraine. We made the choice of requirements concerning investors and business leader in order to get different point of view from their interactions. The region was chosen following the characteristics that the different actors could offer. Investors have a strong knowledge of the Lorraine venture capital environment. In some case, they can have both experiences coming from public venture capital organization and working in private organization. Thus venture capitalists can show their habits, way of thinking, norms, values, which represent an interesting context to study. Concerning the business leaders, the fact they come from the same region appear as important, notably to observe the existence of a crowding out effect through interactions between private and public investors. Thus, the startup environment provides the possibility to see interactions and its consequences on innovation funding. Among the three investors, two are regional state investors; the last is focused on local investments. The first investor comes from a national subsidiary; the second comes from an association and the third represent a semi-public organization funded by the regional council. By this way, these different types of investors can present different situations and various possibilities of interactions. The appendix C-Table C provides information about persons interviewed, the date and the duration for each meeting. For each company and interviews of investors or business leaders the subjects for discussion and the information were the same. We focused first, on the characteristics of the company and on its business leaders, the motivations, the strategies and relationships with venture capitalists were discussed afterwards. For the venture capitalists we focused first on their characteristics and on the funding conditions and particularly for innovation project. We also spoke about the conditions required to syndication between private and public VC. Relationships between

venture capitalists, with business leaders, strategies, experience, and exchange of information were also discussed. For all interviews we also asked an overall impression about the crowding out effect, the public or private intervention, efficiency of innovation investments. The appendix D presents the characteristics of venture capital companies. All the interviews were transcribed and have been based on a thematic content analysis presented as follows.

2.2. Results

Our literature review based on a historical approach of venture capital has demonstrated the importance of the French government to spur innovation. However, the strong presence of public authorities has raised the question of crowding out phenomenon and its impacts on innovation development. According to our qualitative research and the interviews conducted we can see that in relationships between venture capitalists 2.3.1 cognitive exchanges are a factor of convergence resulting in a productive collaboration. However, some 2.3.2 limitations of cognitive advantages can lead to a crowding out phenomenon even if 2.3.3. relationships between private and public venture capitalists tend to have a positive role for innovation.

2.3.1 Cognitive exchanges are a factor of convergence resulting in a productive collaboration

Many venture capitalists think that cognitive exchanges between them are favorable for their daily work. The venture capitalist C2 presents this aspect as a foundation of its professional activity. According to him, it corresponds to a method to learn the profession. By the way, those exchanges are made without distinction concerning the nature of venture capitalists (public or private). With these exchanges we can note that in some French regions, during the eighties, it constituted a mean to learn the job, still reproduced since then: C2: *"In the eighties I was promoted to the head of a venture capital funds for regional innovation, I didn't know in what the job consisted of. In public structures, formation for this type of job didn't exist yet. So I went to a regional structure of venture capital to meet some venture capitalists and get some information. After this day every week I used to go in this*

structure to exchange with others venture capitalists. They taught me the job, and now I used to do the same things”

« The mimetic isomorphism » (Di Maggio et Powell ; 1983 ; 1991) should be a reason to adapt its behavior according to other members. In this case, it is a question to imitate the most identifiable or recognizable behaviors without “logic of performance”. According to this framework cognitive exchange will become a productive collaboration. Thus for E4: *“We are accustomed to work with private and public venture capitalists, we exchange some ideas and opinions. In reality a venture capitalist private or public is a venture capitalist by helping to them we help the profession and companies to develop their business”*. We can also see here that these behaviors will be imitated and reproduced. C3: *“ I know most of the venture capitalist here and I use to work with them, sometimes they ask me some advices as I use to ask them, we work as collaborator bringing ideas and developing them”* We can see that this process of imitation seems to be more or less voluntary. This situation shows that we are in front of a learning process (Sorsana,1999). Cognitive exchanges allow to imitate behaviors or to create a situation of a mimetic isomorphism where public and private venture capitalists are not seen as concurrent between each other but as a source of exchange or model in venture capitalists professional area. This specific situation avoids the presence or the creation of a crowding out phenomenon during the interactions between venture capitalists.

2.3.2 Limitations of cognitive advantages can lead to a crowding out phenomenon

Even if Cognitive exchanges try to develop a consensus during the interactions between venture capitalists, it can also lead to cognitive conflicts and create a crowding out effect E4: *“During a meeting I have seen that two directors of public and private funds didn’t have the same opinion on the conception of our profession, one of them was discussing about employment creation whereas the other tried to present a risky situation. Then private investors proposed a training session on financial risk to public investors. The situation became complicated and at the second meeting we learned that the private venture capitalists proposed to a bank to buy the participation of public actor and the bank has accepted ...”* We can see here that some professionals can have different concept corresponding to other representation. It can correspond to a confrontation between

different “worlds” where situation can create conflicts (Boltanski & Thévenot, 1991). *E5: As I can see, Public and private investors have different process and different objectives, during the meeting they are not agree about strategic options. Sometimes private investors threatened to leave and sometimes public investors finally leave.* We can note in this situation that these conflicts can show a crowding out of not only private actors but also public investors.

2.3.3. Relationships between private and public venture capitalists tend to have a positive role for innovation.

According to Boltanski and Thévenot, 1991, “the requirements of the agreements” can be find by understanding the nature of conflicts or discrepancies. We can note that some productive collaborations can become syndications of private and public venture capitalists with a common objective: to invest into innovation. *“C1: I know M... (public venture capitalist) since a long time, we were always speaking about investment strategies giving to each other advices, until we decided to work together “ “ then we decided to contact other venture capitalists for an innovation project and to create a new funds”.. “our role today is to follow new innovation firm and to finance them with our means”.* By this way we can see that venture capitalists overcome their representation to find a common position. *“C2: The objective of this association is to develop innovation funding and project in Lorraine, it represents forty private and public investors which signed the charter of innovation development in Lorraine, then we discuss about best innovation project we can support”.* According to this situation and for private and public venture capitalists, innovation remains an objective of development and also a reason to fund companies. This situation gives an opportunity to respond to private and public investors objective.

Conclusion

The relationships between venture capitalists related to innovation remain few studied in the literature. According to an historical approach of French venture capital we have seen the crucial role played by public authorities to spur innovation through venture capital development. This approach can explain and present the foundations of the crowding out effect. According to the extent literature this phenomenon can be defined as the eviction of

private investors by public intervention. Its origin can be found in public spending which can become in a neoclassical or Keynesian view a “substitution or a complementarity” to private actors. By understanding its main characteristics we proposed the following definition: *“A crowding out phenomenon corresponds to a temporal effect arising from direct and indirect public or private intervention resulting as a partial or complete eviction of private or public actors at the enterprise and market level”* which can be seen as a contribution.

According to the agency theory and a conflict approach we have seen that interest conflicts can be limited with mechanisms based on a disciplinary approach when cognitive conflicts have to be overcome to become a source of innovation (Desbrières, 2005). In this way cognitive exchanges represent a factor of convergence for relationships between venture capitalists leading to a productive collaboration. However, the limits of cognitive exchanges can be represented by an eviction effect of private or public investors. With a qualitative approach and semi-structured interviews conducted in France we can see that relationships between private and public venture capitalists tend to have a positive role towards innovation and its development in France. We can note that the few number of interviews, and the choice to use a single region in France to conduct this analysis can be seen as a limit. To realize this empirical work in different regions might show differences between venture capitalists interactions giving a national presentation of this situation. Added to a qualitative approach, a quantitative study can be also useful to develop some hypothesis and obtain results concerning crowding out phenomenon in France. For further research it should be interesting to consider the risk aversion of private and public venture capitalists related to the funding of innovation.

APPENDIX A

Table A: The Institutionalization of venture capital:

The Institutionalization of Venture Capital

	Normative	Regulatory	Cognitive
U.S. & U.K.	Strong normative values in industry.	*Mature. *Common law provides high shareholder protection. *Strong public equity markets.	*Status of entrepreneurs is high. *Reliance on social networks relatively weak.
Continental Europe	Industry developed from U.S. Strong normative values from U.S. due to its origin, training and interconnections in the industry.	*Mature. *Civil law provides lower shareholder protection. *Bank centered financial markets.	*Status of entrepreneurs is lower than in the U.S. but higher than Asia *Reliance on social networks stronger than in U.S. but weaker than in Asia.
Asia	Industry developed from U.S. Strong normative values from U.S. due to training and interconnections in the industry.	*Generally poorly developed. *Often do not enforce laws/regulations.	*Status of entrepreneurs is low. *Reliance on social networks stronger than US or Europe.

Source: Bruton, G. D., Fried, V. H., & Manigart, S. (2005). Institutional influences on the worldwide expansion of venture capital.

APPENDIX B

Table B: Business manager Monitoring and incentives mechanisms:

TABLEAU I. : LES MECANISMES DE CONTROLE ET D'INCITATION DU DIRIGEANT

	Mécanismes spécifiques	Mécanismes non spécifiques
Mécanismes intentionnels	Assemblée des actionnaires Conseil d'Administration Système de rémunération Clauses du pacte d'actionnaires Contrôle par les salariés Nature du suivi	Environnement légal et réglementaire
Mécanismes spontanés	Réseaux de confiance informels Contrôle par les salariés Culture d'entreprise Réputation...	Marchés de biens et services Marchés financiers Marché du travail Environnement médiatique...

Source : D'après Charreaux, 1997.

Translation: Business manager Monitoring and incentives mechanisms

	Specific mechanisms	Non- specific Mechanims
Intentional Mechanisms	Shareholders' meeting Board of directors Compensation system Shareholders' agreement Monitoring by employees Nature of the follow-up	Legal and regulatory framework
Spontaneous Mechanisms	Informal trust network Monitoring by employees Corporate Culture Standing or reputation	Goods and services markets Financial Markets Labor Market Media environment

APPENDIX C

Table C: Data collection of interviews:

	Interviews July 2015				
	DATE	DURATION	Members being questioned	Method	Name of the interview
C.I. 1	July 2015	2H00	Director	Face to Face	C1
C.I. 2	July2015	2H15	C.E.O	Face to Face	C2
C.I. 3	July 2015	1H45	Director	Face to Face	C3
DIR 1 TECH	July2015	1H30	Business leader	Face to Face	E4
DIR 2 INNO	July 2015	1H15	Business leader	Face to Face	E5

APPENDIX D

Table C: Data collection of companies:

Name	CI 1	CI 2	CI 3
Creation Date	2011	2007	2015
Field	VC	VC	ASSOCIATION
Company size Targeted	SME	SME	SME
Amount of the investment	20000 to 300000 €	150000 to 2 million€	25000 to 250000 €
Geographic Area	State and local	State and national	State and local

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