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VC Policy: Moving from a Financial Perspective Towards a Systematic and Evolutionary Framework

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"VC Policy: Moving from a Financial Perspective towards a Systemic and Evolutionary Framework"[1]

Abstract

Many VC policies in Europe up to and including the 1990s took a 'static' financial view of VC that focused on bridging financial gaps rather than creating of a new mechanism to assure the emergence of higher forms of organization, such as a cluster or a market. Following the weak impact of some of these policies, we propose that a new systemic and evolutionary framework can be useful for both real world ('positive') analysis and policy ('normative') analysis.

This policy brief discusses the framework's theoretical foundations. We argue that the success of VC policies depends on factors such as the phase of evolution of (i) VC or related innovation finance organizations; (ii) the underlying segment of startup companies and of high tech industries; and(iii) the specific regional institutional setting. Thus, while in some contexts it may be worth targeting a new VC industry/market (and associated high-tech clusters), in others VC policy should focus on improving *pre-emergence conditions*.

The new framework is shaped by (i) a multidimensional view of VC; (ii) strong interaction between VC policy and the development of high-tech clusters; and (iii) a strategic approach to policy.

ACRONYMS

VC - Venture Capital according to Gompers and Lerner (1999; 2001) definition; **VC* -** VC oriented exclusively to early stage finance of high tech Start Up; **VCs -** VC firms; **PEs -** Private Equity firms**; CVC -** corporate VC; **BAs -**Business Angels**; MBOs -** Management Buy Outs; **STE -** Science, Technology and Education; **ILC -** Industry Life Cycle; **ITP-**Innovation & Technology Policy; **ICT -** Information and Communication Technologies; **LS -** Life Sciences; **SUs -** High Tech Start-ups; LP-Limited Partnerships.

Key words: Market, Industry, cluster, organization, venture capital, policy, economy, framework, innovation, interaction.

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"VC Policy: Moving from a Financial Perspective towards a Systemic and Evolutionary Framework"[2]

1. Introductory Notes

Despite many attempts to develop high impact VC policies in Europe, a consensus seems to exist that the impact of the policies implemented up to and including the 1990s was below expectations. While these attempts were in line with the objective of the Lisbon Agenda (Sunley et al 2005), no country or region in Europe has undergone a full VC* emergence process. We propose that such failure may be related to the perceived nature of VC as 'pools of money" rather than industry/market whose phase of development should be consider in the VC policy design.

The underlying approach of European VC policies and the apparent emphasis on monetary incentives and the strong supply-push bias have been criticized from various angles. First, it has been argued that the dynamics of VC industries/markets emergence can differ from case to case (Florida and Kenney 1998; Sunley et al 2005). Second, VC policies should consider the emergence of a VC* industry/market as an important policy objective (Avnimelech and Teubal 2008a). Third, more attention ought to be paid to the demand-side, that is, the emergence of technological capabilities and "investor-ready" opportunities (Mason and Harrison [MH] 2003).

In this paper, we propose that supply-side measures and monetary incentives should be complemented or replaced with policies that aim to build new markets and high-tech clusters.

2. A Financial Perspective to VC and VC policy

The 'finance perspective' to the analysis of VC policy originated in the 'finance literature' (Gompers & Lerner 1999)[i] and focuses on VC as pool of money and on the operation of existing VC organizations and existing VC industries/markets. Its policy recommendation relate to incentives to fundraising and investment.

Lerner (2002) explains that VC constitutes a form of financial intermediation that solves a complex contractual problem linking investors and young new ventures characterized by high risk, information asymmetries and, potentially, moral hazard. Lerner also envisages the possibility of a direct intervention by policy makers to increase the supply of risk capital available to SUs in certain areas. Such intervention is justified based on market failures and the positive externalities associated with investments in young technology-based companies. Lerner (2002) examines the case of the *Advanced Technology Program* and argues that public programs can be effective if they operate in a manner that is flexible and compatible with the structure of the local financial community.

According to Gilson (2003), the central lesson from the successful US experience in generating a VC market is "the extremely effective contracting structure that covers the entire venture capital cycle, from initial investment in the VC fund, to the VC fund's investment in a portfolio company, to the exit from the portfolio investment to allow the VC fund's cash and non-cash investment to be recycled" (p. 1092). Gilson argue that this model could be replicated elsewhere and that the Government could

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engineer the process. He suggest that the creation of a VC market is a difficult coordination problem, in that the supply of entrepreneurs is responsive to venture funding and to the existence of appropriate financial institutions. However, Gilson proposes that the first successes with VC would endogenously ´reveal´ new entrepreneurs.

Bottazzi et al (2004) and Da Rin et al (2006) take a different perspective and argue that active VC market will strongly respond to 'incentives' but will not respond to attempts by Governments to directly affect the flow of VC funds[3]. Da Rin et al (2006) use this conclusion to examine and interpret the results of some VC policies attempted in Europe of the past 10 years. As far the problems faced by Europe are concerned, they suggest that the idea of *closing a funding gap* through direct public intervention is fundamentally misleading. Policy-makers should focus on defining the appropriate regulatory and institutional conditions. The key assumption is that once these conditions are satisfied, the flow of VC will be automatically matched by rising demand from rapidly growing ventures.

Thus, while there are disagreements vis-à-vis the suitability of policies that aim at covering funding gaps and the idea that VC supply stimulates demand, all these approaches concentrate on financial incentives and the resolution of contractual problems. Further, the general conclusion is that policy-maker can and should define fiscal rules and institutional arrangements that will induce VC markets to operate efficiently.

3. Problems with the finance perspective to VC policy

As discussed in the previous section, it is generally believed that *ex ante* fiscal provisions (reductions in capital gains taxation) and institutional changes (creation of LP **form of VC organization** and high-tech stock markets) will lead to the emergence of efficient VC markets. It is important to note that both sets of measures seem generally applicable, regardless of the structure of the local economy or its institutions. In other words, any type of economic system, irrespective of its industrial or institutional configuration and stage of development, is expected to react positively to the setting up of new forms of intermediation and the eradication of barriers to entrepreneurship.

This *one size fits all* type of approach has its own critics, which are presented in the next sections.

3.1 On the process of market emergence and policy phases

Avnimelech and Teubal (2004; 2006, 2008a,b) consider the case of Yozma, the successful Israeli VC targeted program that has being emulated and adopted by various countries. [Yozma involved a Government VC component, most of it 'delivered' to hybrid, privately owned LPs (fund-of-funds function), rather than through a publicly owned VC company. The VC organizations created alongside Yozma and which originally managed a total of 250 M$ in the Yozma program (100 M$ Government money and 150 M$ additional private money) raised an additional 3.200 M$ (6.000 M$) until the year 2000 (2008)**.**

The analysis of Avnimelech and Teubal assumes (i) a number of successive stages in the emergence of the new industry/market and (ii) a number of policy phases that triggered such a process. The argument is that provided appropriate *background* and

[3] This view is contrary to the successful Israeli experience, see Avnimelech & Teubal 2005,2008a

pre-emergence conditions prevail, VC could be a central vector in the creation of startup-intensive clusters. The main theoretical reference is Abernathy & Utterback (1978). Two of the extensions and modifications introduced by Avnimelech and Teubal (2006) are relevant: the focus on conditions for creation of a new industry/market; and market/industry creation as 'an emergence process' characterized by *dynamic* increasing returns to scale. *Emergence* is a particular process of 'qualitative' change whereby a set of precursor agents originally acting independently become, through a process of interaction, a multi-agent higher level organizational structure, such as a new industry or market.

Frequently a new intermediation form is a pr*e-emergence condition* for the creation of a new market/industry. Beyond product/service bundling issues due to economies of scale in market building and in transactions costs, it involves the mutual adaptation of the supply agent, the demand agent and the institutional structure (Antonelli and Teubal 2008) as mentioned in the context of VC (Gompers and Lerner 2002).

While an appropriate intermediation form leading to industry/market emergence should be viewed as resulting from a dynamic process, there is no assurance that this process will be unique. Indeed, the comparison between the Israeli VC experience and that of other EU country suggest that there can be a variety of VC pre-emergence configurations with the potential to lead to successful emergence (Rosiello and Parris 2008). Further, unlike the Israeli case, precursor organizations that dominate pre-emergence need not be of the same type as those that eventually come to dominate the new industry/market. Thus, the presence of informal organizational precursors, such as BAs consortia, may constitute a pre-emergence condition for more formal actors which may come to dominate a successfulemergence process.

3.2 Heterogeneity

A VC-led emergence *profile* of a cluster, while apparently having been so in the case of Silicon Valley and Israel (mostly in relation to ICT), is not the only possible profile of emergence. The organization of finance may differ from region to region and so the dominant forms of VC organization may differ from the LP form. On the contrary, the dynamics and profiles of emergence can vary from case to case (Mayer 2003; Avnimelech and Teubal 2006, Rosiello et al 2008). Such variations may dependent on the features of the regional and sectoral systems of innovation. Moreover, variety concerns investee companies and the agents who provide funds to VCs, which often results in different portfolio characteristics across countries with respect to stage, geographical scope, and sectors (Mayer et al. 2003).

3.3 Market Failures, Risks and Uncertainties

VCs are argued to be able to deal with failures that occur in the private equity market (especially for young technology-based firms) via a range of *ad-hoc* contractual arrangements. As noted earlier, Gilson (2003) concludes that any government can intervene by financing VCs and, as a result, capable entrepreneurs will reveal themselves. However, the solution to the abovementioned problems appears more complicated. In evolutionary economics, firms operate in conditions where uncertainty, continuous mutation and evolution tend to prevail. Moreover, economic agents are not perfectly rational.

Assuming radical uncertainty, a first requirement for the effective application of the proposed policy perspective is that policymakers consider what cognitive structures to access and what constraints and opportunities to consider when designing and

implementing policies. Constraints and opportunities can be time/context dependent, and, therefore, difficult to foresee.

4. Working towards a new Perspective to ITP & VC Policy: Motivations, Theoretical Foundations and General Principles

Three directions of VC policy up to and including the 1990s are frequently mentioned in the literatue: government direct supply of capital to firms; providing financial incentives to VC investments; and broadening investment rules. The 2000 OECD report lists 'supply side measures' in support of VC, which include promotion of private VC investment; removal of barriers to entrepreneurship; development of second tier capital markets; direct equity investments in SUs; and equity guarantee programs. While warning about the risks of crowding-out private VC, the report concludes that governments can play a useful role if such schemes are properly conceived.

In line with the conceptual foundations of the finance perspective, the set of proposed measures means that the *ex ante* specification of proper fiscal, monetary and institutional pre-conditions can be conducive to efficient VC markets. As a result, existing entrepreneurs reveal themselves (Gilson 2003) and the removal of fiscal and institutional barriers to entrepreneurship will induce the birth and growth of more ventures (Da Rin et al 2006). In contrast to this position, we propose that the weak impact of past VC policies is somewhat related to these notional pitfalls. Among the visible policy implications are its supply-side bias, overemphasis on remedying financial gaps and providing financial incentives, and neglect for the dynamic process of market/cluster emergence.

The limited impact of both fiscal provisions and direct Government investments in Europe stand out against the success of Yozma (Avnimelech and Teubal 2006), which we consider as an extreme case of non-crowding out. Both the emphasis on a fund-of-funds approach and the existence of favorable pre-emergence conditions explain why in Israel a strong complementarity was found between the Government's VC contribution and private contributions. The normative implication is that, in contrast with Da Rin et al (2006), public/private VC funding complementarities can emerge (Avnimelech and Teubal 2005,2008a). Further, unlike in Gilson (2003), complementarity is a) context-dependent and b) can trigger a self-sustained, private VC-intensive process of market/cluster emergence.

The overarching goal of innovation and VC policy must be to trigger and sustain high impact cumulative and self-reinforcing processes of innovation-led growth. However, the experiences of the past few years suggest that dealing with failures by setting up proper fiscal and institutional conditions may not be enough to develop efficient markets. So far insufficient attention has been paid to the process of market/cluster emergence, that is, the dynamic mechanisms that shape the co-evolution (rather than the separate evolution) of VC supply and demand. Thus, VC policies should consider the nature of VC and the elements of the innovation system that affect VC policies and their impact. These will directly affect the design, timing and implementation of the VC policies themselves.

4.1 The Goal of VC Policy

What is aimed at is creation of a new VC industry/market. Moreover, in Israel the new VC industry/market was embedded in a new cluster a fact that led us to suggest above that in some cases, VC* emergence policies should be part of broader cluster policies. In those countries that succeeded with policies of this type, the VC industry seems to

have emerged from a set of pre-emergence conditions that provided the right setting for attempting to trigger and sustain emergence.

There are several alternative patterns of relationship between VC emergence and industrial clustering. These depend on local idiosyncrasies, and on sectoral differences. As a result, VC-related policies whose objective is emergence would respond to different specific targets and should be planned and implemented in different ways.

A static view of policy is often accompanied by an *incomplete view of the pre-conditions for policy success*. The weak impact of policies derived from either a lack of required preconditions for a successful VC/VC* and cluster emergence or the fact that the policy *implemented* was not appropriate from the point of view of its objective. In the latter case, failure may be the result of inadequate design and timing of policies rather than inappropriate policy objectives.

The examination of various experiences, including those of Israel and UK/Scotland (Avnimelech and Teubal 2008b, Rosiello and Orsenigo 2008), suggest that different policies are needed at different development phases.

4.2 Strategic Level of Policy-Making

From a system and evolutionary angle, VC policy is required to deal not only with market failures, but also with systemic failures that prevent cluster and market emergence. VC is seen as an engine of economic growth, an engine that co-evolves with other components of the regional system of innovation. Systemic blockages can consist of a lack of proper *pre-emergence* conditions; an industrial structure locked-in declining sectors; or, at a certain point in time, a lack of key assets/competences.

Dealing with systemic imbalances is often required to take advantage of existing opportunities. Such opportunities may coincide with a variety of occurrences such as technological revolutions, processes of technological convergence/divergence, and macroeconomic trends that positions a region in a good position to take advantage of an increased demand for specific products or services. Thus, the systemic perspective to VC policy (broadly defined) emphasizes links at a moment of time and through time between VC and VC policy on the one hand, and clusters and cluster policy on the other; and between these and other factors such as ITP.

The above suggests that a *strategic policy level* may be required. Its central function would be to set strategic priorities, to identify system failures blocking their attainment by the existing system and policies, and, together with the operational level, to identify and design new policies whenever these are called for by the new priorities. Beyond the identification and articulation of new strategic priorities, a strategic level of policy should be involved in policy coordination.

4.3 A Typology of Policies and the ITP Portfolio

ITP and VC policy include incentive programs, institutional/regulatory changes, systematic policy evaluations and the identification of strategic priorities. Incentive programs can be classified in terms of their objectives. We consider two types of direct support to companies, horizontal and targeted programs. Horizontal programs support functions like R&D rather than specific sectors or technologies, are open to all firms, and leave to firms the freedom to choose projects (Teubal 1997). Targeted programs support firms belonging to a particular sector or undertaking projects in particular technological areas. Recent work has emphasized the point that in many circumstances early direct support to companies should emphasize horizontal programs while, as time

and experience accumulate, a partial shift towards targeted programs may be desirable (Teubal 1997; Avnimelech and Teubal 2008b).

The notion of *evolutionary targeting* is central (Avnimelech and Teubal 2008a). The general framework does not focus specifically on VC nor on any one country or industrializing economy; even less does it argue that the possibility and desirability of targeting a particular industry such as VC is open to all economies at all times. Rather it proposes that under certain circumstances, it is possible and it could be desirable to target multi-agent structures such as new sub-branches, product classes, technology sectors, markets or clusters.[ii]

Even when the objective is the emergence of a new VC industry/market, it is important to consider other *VC-related policies* such as support of innovation at the firm level, support of specific technology fields at research institutes, and adapting anti-trust or IPR legislation. These may be implemented before or during the actual targeting of VC.

5. Main Policy Implications

The main normative implication is that VC policies broadly defined depend on the phase of evolution of: (i) VC or VC-related innovation finance organizations; and (ii) the demand' for such services by the SU segment, an industry or a cluster. No less important they also may depend on the strategic priorities concerning emergence of new clusters, the institutional setting and on other country/region specific factors. Thus, while in some contexts/phases it would be worthwhile aiming at a VC market and/or industry, in others it may be critical to focus on pre-emergence conditions. These include stimulating innovation in firms, experimenting with new forms of innovation finance and intermediation, or strengthening the underlying STE infrastructure.

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[i] Gompers and Lerner's (in their 1999 & 2004 volumes) approach is more than a simple 'VC as a pool of money' perspective (since it does explicitly consider the organizations dealing with VC) and less than 'VC as an industry and market that emerges' perspective.

[ii] Israel's Yozma program is a successful instance of 'Evolutionary Targeting' (Avnimelech and Teubal 2008b)

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