GOVERNMENT PROMOTION OF LEARNING AND INNOVATION IN SMEs OF INDUSTRIALIZING ECONOMIES

Subsidies, Venture Capital & Private Equity

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OBJECTIVE

- *Propose a <u>general</u> two-phase Innovation & Technology Policy (ITP) 'model' for the support of SME's in Developing Economies*

- *Several variants of the model*

- *Innovation is broadly conceived*

- *Part of a more extensive policy model comprising 3 or 4 phases*

ITP MODEL-PHASE 1

- **Subsidies to Innovative SMEs**

- **Objectives*:***

- *Diffusion of Capabilities*

- *Creating of an Innovative SME, KBE-based segment*

- *Create 'demand' for VC, PE ('private financial infrastructure')*

ITP MODEL-PHASE 2

- **Targeted Support of VC/PE**

- **Objective**
- *Emergence of an Effective VC/PE industry that could support growth of an innovative SME-sector*

BROAD DEFINITION OF 'INNOVATION'

- **Transfer and Acquisition of new technologies**
- **Technological Learning**
- **R&D**
- **Engineering and Design**
- **New Markets/New Organization/New Strategy**
- **Technological 'modernization'**

- **etc**

VENTURE CAPITAL (VC) & PRIVATE EQUITY (PE)

- *Specialized , independent financial organizations focusing on <u>equity based investments</u> in <u>high growth companies</u>*

- VC focuses on high tech Start Ups(SU) and on 'early (R&D) phase' finance of these SMEs

- PE oriented to mid/low tech and to services, with a smaller share of high tech investments (if at all)

- PE also invests in mature, incumbent companies; and in later phase investments including such things as MBO, MBI, etc

CHARACTERISTICS OF VC (lesser extent -of PE)

- **Equity Investments, adding value to portfolio companies & exit**

- **Added Value: *Management Support, Marketing and Production, Head Hunting, going public (IPO)***

- **Exit-e.g. *IPO or Acquisition by another company***

CHARACTERISTICS OF VC/PE- (2)- ORGANIZATIONAL FORMS

- **LIMITED PARTNERSHIPS (LP)**
- **Publics VCs (quoted in stock market)**
- **Government Owned**
- **Linked to Banks or Corporations**
- **Other (especially PE):** *Investment Companies; Mutual Funds; Closed Funds; etc*

THEORETICAL PERSPECTIVE

- **Evolutionary/Systems Perspective: *general; and in relation to ITP***

- **Four Knowledge 'modules'**

- *Grants-based Horizontal support of innovation to enterprises*

- *Industry Life Cycle Perspective to VC/PE*

- *Targeted Policies supporting VC/PE*

- *ITP-Innovative SME Co-Evolution*

SYSTEM FAILURES CONFRONTING INNOVATIVE SMEs

- **Innovation and Learning Externalities-** *many aspects e.g. tech. Dev.; penetration of new markets, manag.;etc*

- **Collective Learning (***also involving issues of critical mass and missing System Components)*

- **Knowledge Based Entrepreneurship (KBE)-***e.g. demonstration effect of early, successful KBE*

- **Finance and Support (***next slide)*

- **Building Networks-***recognized by OECD in connection with SU and VC*

- ***Other-****coordination, infrastructure, institutions, clusters*

SYSTEM FAILURES CONFRONTING INNOVATIVE SMEs-Limitations of BANKS & bank LOANS

- ## Pertaining to Innovative SMEs
  - *Knowledge Asymmetries*
  - *Uncertainties of Markets and Technology*
  - *Frequently, unknown entrepreneurs*
  - *High Share of Intangibles in total Assets*

- ## Pertaining to Banks
  - *Knowledge & Capabilities Constraints*
  - *Regulatory Constraints(sometimes)*
  - *Bank Strategy/Routines*

HOW VC(SOME EXTENT PE) OVERCOME SYSTEM FAILURES

- **Strong Capabilities:** *from background of entrepreneurs; specialization; learning/experience: screening, due diligence, investment, monitoring, adding value and exit; networks with suppliers, investors, clients, partners,etc; know-whom*

- **Organization and Routines:** *advantages of LP (flexibility, incentives, taxation); proactive role by virtue of owning stock; strategy; etc*

- **Participation in Board of Portfolio SMEs**

- **Access to information within the firms**

- **Phased finance, etc**

VARIANTS TO TWO PHASE MODEL

- **Variant 1:***Some countries/regions already have a pool of innovative SMEs---> can start directly at phase 2*

- **Variant 2:** *A minority of countries may not need targeted policy I.e. VC/PE emergence will occur endogeneously*

- **Variant 3:***Differences in initial structure of SME segment; and in the broader institutional and policy context--->*may determine the type of program to be implemented e.g. function supported, horizontal/targeted, instrument used, etc

EXAMPLE OF PHASE 1 POLICY-ISRAEL'S GRANTS TO R&D PROGRAM 1969--

- # General
- *Institutional Background: Creation of OCS in 1969-a specialized agency in charge of ITS directed to the Business Sector*

- *Focus on direct R&D Grants to business enterprises (initially all were SMEs)*

- *Horizontal Program*

- *Weak Budget Constraint till the mid 90s*

Learning in the Early sub-period (Israel)

- ## Intra-firm Learning

- *How to search for market and technological information*

- *How to identify, screen, evaluate and choose new innovation projects*

- *Learning to generate new projects, including more complex ones*

- *Learning how to managed the innovation process (e.g. linking R&D to production/marketing)*

- ## Collective Learning

- *Importance of marketing*

- *Policy learning through an informal policy network involving OCS officials*

GENERAL PRINCIPLES OF HORIZONTAL PROGRAMS

- **Two phases-early sub period** *(focus on learning and capability development);*

- **Later/mature sub-period** *(focus on restructuring)*

- **Elements of Learning Approach:** *assuring critical mass of projects; creating a policy implementation network; generating relevant typologies of R&D projects/innovations; codifying and diffusing knowledge; special attention to diffusing R&D/innovation; building policy capabilities; other*

HORIZONTAL PROGRAMS-MATURE PHASE

- *Reduction in the average subsidy*
- *Greater amount of selectivity*
- *Identifying areas of competitive advantage*
- *Identifying areas for targeted promotion (e.g. selected product areas; and VC/PE)*

EXAMPLE OF PHASE 2 POLICIES-ISRAEL'S TARGETED SUPPORT OF VC 1993-8

- **Background:** *late 80s-lots of companies receiving R&D support failed; lack of VC identified as System Failure*

- **First Attempt-the Inbal Program 1992:***support of public VC; failure*

- **Design of Yozma (2nd successful attempt)**

- **Specific System Failures dealt by Yozma:***foreign partners, critical mass, coordination, selection of organization and strategy; promotion of learning; and country sygnaling*

APPLICABILITY OF THE TWO PHASE ITP 'MODEL' TO INDUSTRIALIZING ECONOMIES

- **There are two categories of reasons why the R&D/VC experience of Israel may be applicable –**

- *Reason 1: Top Tier Industrializing Economies may be interested in Software/IT high tech (above experience more directly applicable)*

- *Reason 2: Commonalities between a VC industry serving high tech SU and a PE industry serving a broader segment of innovative SMEs*

REASON 1

- **In several countries suitable 'background conditions' are emerging for the development of R&D intensive industries**
  - *India, China, Singapore, Brazil etc*
  - *Some are increasingly involved in Software & IT services; good links with MNEs and their needs; increasing reputation and reliability*
  - *MNEs are establishing R&D labs, the basis for future spin-offs to high tech industries*

- **Government subsidies to emerging R&D performing companies may accelerate the process (also set the basis for a domestic VC segment)**

COMMONALITES BETWEEN A VC-SU SEGMENT AND A PE-INNOVATIVE SME SEGMENT

- **Increasingly innovative SMEs will operate in a knowledge intensive, global & highly competitive environment-somewhat similar to the environment facing high tech SU**

- **Therefore, PE (or a mix of VC/PE) companies must emerge to provide support to SMEs which is similar to that which 'strict' VCs provide to high tech SU**

WHY IS THIS SO?

- *Increasing importance of Knowledge*
- *Increased importance of management skills, networking and reputation to compete in the global market*
- *System failures blocking the transformation of traditional SME segments*
- *Advantages of Equity based mechanisms (over traditional mechanisms) in overcoming such failures*
- *Phase 2 policies ('targeted policies supporting VC/PE emergence") may be required due to System Failures blocking the creation of a PE/VC segment*
- *There might be commonalities in the policy challenges for creating VC industries with those involved in the creation of a VC industry*