Assessing Venture Capital (VC) Policies

Morris Teubal & Gil Avnimelech
March 2003, Pavia
ESTER Project
OBJECTIVES

• A detailed analysis of the Yozma Program & its impact on VC emergence in Israel
• A detailed analysis of VC-Policies of other countries-the US and another country (probably India, Taiwan or a European country)
• *In parallel to the above –* propose a conceptual framework for the assessment of VC policies
• Attempt to define ‘Profiles’ of VC-directed/related policies--*& of the Context in which they operated*--which had a strong impact on VC industries (particularly on VC ‘emergence’)
Background (1) - Emergence of Israel’s VC Industry

- VC emergence (a combination of PLC ‘fluid’ & ‘growth’ phases) took place during 1993-8
- It was part of the transformation of Israel’s high tech industry (HT) towards a silicon valley model
- In the 80s HT was hardware based electronics with a strong defense R&D component
- In the 90s it was IT with large numbers of SU companies and significant amounts of VC
- Drivers in the 90s: not only product markets (which, were expanding) but also global capital markets
### Table 3: Israel's high Tech Cluster of the 90s

<table>
<thead>
<tr>
<th></th>
<th>99/00</th>
<th>90</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of SU</strong></td>
<td>~3000</td>
<td>~300</td>
<td>~150</td>
</tr>
<tr>
<td><strong>Number of VC Companies</strong></td>
<td>~100</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Funds Raised by VCs: M$</strong></td>
<td>3400</td>
<td>~49</td>
<td>0</td>
</tr>
<tr>
<td><strong>Capital Invested by VCs: M$</strong></td>
<td>1270</td>
<td>~45</td>
<td>0</td>
</tr>
<tr>
<td><strong>Accumulated No of IPOs (hi tech):</strong></td>
<td>~130</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td><strong>Accumulated VC-backed IPOs:</strong></td>
<td>~70</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>% Foreign Sources in SU funding</strong></td>
<td>67%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>% IT Exports in Manufacturing Exports</strong></td>
<td>45.7%</td>
<td>~33%</td>
<td>~20%</td>
</tr>
<tr>
<td><strong>Mergers and Acquisitions : B$</strong></td>
<td>~10</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
Background (2) - Two Periods Prior to VC Emergence

- A period where favorable ‘background conditions’ were generated (80s); & A
- ‘Pre-emergence’ period (1989-92) where significant business experiments & policy learning took place
Background (3) - ’Background Conditions to VC Emergence’ (1980s)

- The appearance of an Electronics industry with significant R&D capabilities
- Consolidation of the (Horizontal) R&D Grants scheme
- Beginning of Links with the US (BIRD-F program)
- Restructuring & Downsizing of the Military Industries
- Stabilization and Liberalization of Capital Markets
- World ‘technology’ Capital Markets became Global
- Other external (IT Revolution, deregulation of Communications; etc) & internal events
Background (4) - Pre-Emergence Period (1989-92)

- A set of important Business Experiments- structuring a new type of SU, bringing ‘not-yet-profitable’ SU to IPO (Lannet & Magic in 1991); VC activities by individuals and a few formal VCs, etc.

- Policy Experimentation and Learning- e.g from Inbal Program; from the Business Experiments- → focus on LP form of VC

- Both involved Variation & Selection
Background (5) - Aspects of VC emergence (1993-8)

- High rate of growth of VC activity and of SU
- Experimentation/learning w/r VC strategies, procedures, contracts; also with ‘institutions
- VC-SU Co-evolution
- Onset of a Cumulative Process of growth involving positive ‘feedback’, through: entry; expansion of existing (mostly, Yozma) funds, collective learning, reputation & networking effects, exploitation of economies of scale
Definition of Emergence

- High rate of entry of VC & SU companies and high rate of growth of VC-SU activities
- Cumulative process of growth
- A lot of experimentation takes place both with VC strategies & with VC structure
- Collective learning & VC cooperation
- Building of industry’s institutions
### Israel's High Tech Cluster of the 90s

<table>
<thead>
<tr>
<th></th>
<th>99/00</th>
<th>90</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of SU</strong></td>
<td>~3000</td>
<td>~300</td>
<td>~150</td>
</tr>
<tr>
<td><strong>Number of VC Companies</strong></td>
<td>~100</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Funds Raised by VCs: M$</strong></td>
<td>3400</td>
<td>~49</td>
<td>0</td>
</tr>
<tr>
<td><strong>Capital Invested by VCs: M$</strong></td>
<td>1270</td>
<td>~45</td>
<td>0</td>
</tr>
<tr>
<td><strong>Accumulated No of IPOs (hi tech):</strong></td>
<td>~130</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td><strong>Accumulated VC-backed IPOs:</strong></td>
<td>~70</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>% Foreign Sources in SU funding</strong></td>
<td>67%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>% IT Exports in Manufacturing Exports</strong></td>
<td>45.7%</td>
<td>~33%</td>
<td>~20%</td>
</tr>
<tr>
<td><strong>Mergers and Acquisitions: B$</strong></td>
<td>~10</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
VC Policy Literature (1)

- **Very restricted literature** (contrasts with extensive literature on the operation and impact of VC)
- **Little understanding yet about causes of Success or Failure of VC policies**
- **Most VC policies reported/analyzed there**—were simplistic policies that failed to trigger VC emergence
VC policy literature (2)

• Israel’s Yozma Program: the (or one of the) most sophisticated & (probably) high impact program

• It seems to “fit” with the country & high tech Context of 1993 and beyond

• An Analysis of Yozma which follows a Systems/Evolutionary Perspective can help us understand why VC policies elsewhere were much less successful
Most Policies during 80s and early 90s failed.
1) focused on how to increase the pool of VC (an aspect of the Supply side)
2) Tools used included: reductions in capital gains and other taxes; government guarantees; etc
3) did not consider the state of demand (e.g. quantity and quality of SU)
4) ignored the issue of how to attract high level professionals to the industry
5) ignored issues of VC organization (LP)
THE YOZMA PROGRAM

• The Policy Process prior to Implementation during 1993-7
• Critical Dimensions of Design
• Comparing Yozma with Inbal
• Assessing & Explaining Yozma’s impact
  • Meso-Industry level of Analysis
  • Microeconomic Insights
Conceptual Framework for VC policy Evaluation (1)

• A country’s VC story will be cast in terms of (4) components
  – A Set of Evolutionary Phases (available)
  – A Set of Variables and V. Categories (a set generated from our study of Israel’s VC)
  – Co-evolutionary Process to be Assembled
  – Assessing VC impact and VC policy Impact
The Israeli High tech cluster evolution model

1. **System Failure 1 in Period 1**

2. **System Failure 2 in Period 1**

First ITP in Period 1 (The regular R&D fund)

Second ITP in Period 1 (BIRD-F activity)

Restructuring of the Business Sector Leading to Favorable Background Conditions

Existence of Favorable Background Conditions

Internal & External events

Pre-Emergence Events

Pre-Emergence events enable the identification of Period 2 System Failure

ITP of Period 2 (Yozma)

High Tech cluster (VC & SU) emergence In Period 2
Conceptual Framework (2)

Impact of VC

• To a large extent will rely on studies of others

• Limitations to the method used in the VC literature (comparison of VC-and non VC-backed SU)

• VCs, SU are not exogenous but linked through co-evolution (at least this is consistent with the Israeli data)
Evaluation of VC Policy Impact
No methodology exists for evaluating Innovation/Technology Policies which follows an Evolutionary/Systems Perspective.

A comparison of Israel’s co-evolutionary processes [not only of Israel’s VC-directed policies] and those of [or absence in] other countries—may suggest possible gaps which could explain those countries (supposedly) lower VC Policy Impact
Conceptual Framework (4)

• A well developed methodology should be based on cross country comparisons

*Expected Outputs*

A set of profiles of VC-related policies and co-evolutionary processes which has resulted in ‘success’ (e.g. the US and Israeli profiles);

Gaps in such profiles (or other profiles) would suggest ‘causes’ of weak VC policy impacts.