

# **High Tech Development Policy: Israel's Experience with two Policy Instruments**

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# Background

- The development Israeli high-tech sectors began during the mid 1960s
- Till 2008 it followed three main phases of development: building pre-conditions (during the 70s and 80s), rapid growth (during the 90s), and post-emergence (since 2001)
- The VC emergence was the main trigger of the Israeli high-tech cluster takeover during the 1990s

# Phase 1a: 1969-1980

- National strategic decision to develop defense R&D capabilities and significant R&D activity in the BS
  1. Extensive expansion of defense R&D industries
  2. Creation of the OCS (1969) → financing of R&D in the business sector
- First Israeli Electronic companies (Telrad, 1952; ECI 1961; Teldor, 1966; Elbit 1966)
- First Greenfield investment of semiconductors MNE (Motorola 1964; K&S 1969; IBM 1972; Intel 1974).
- 2 IPOs in NASDAQ (Scitex and Elbit)
- **No** formal or informal VC activity; **Very Few** startups

# Phase 1b: 1981-1990

- Continues increase in the supply of high-tech employees; strengthening R&D capabilities; and development of few large Israeli high-tech companies
- First wave of Israeli ICT startups (less than 250)
- Slow entry of ICT MNE (Freescale 1982; Lucent, 1986; BMC 1988, Microsoft 1989)
- 16 IPOs in NASDAQ and BIRD-F activity -  
Establishing the links with the U.S. HT industry

# Triggers for Transition

- The global ICT revolution and economic growth → continued stream of technological opportunities
- Creation of the Israeli Software industry
- Restructuring of the defense R&D industries
- Stabilization and Liberalization processes in the Israeli economy
- Significant increase in the OCS grants
- **Two targeted ITPs: the Yozma program and the technological incubators program**

# Takeover/Emergence Phase

- **A Cumulative growth of VC and startup activities** caused by the: initial triggers & conditions, supportive environment, positive feedbacks, and scale economics
- **Emergence of the VC industry**
- **Transition of the cluster** toward a startup-intensive high-tech (ICT) cluster
- **A leading worldwide high tech cluster**

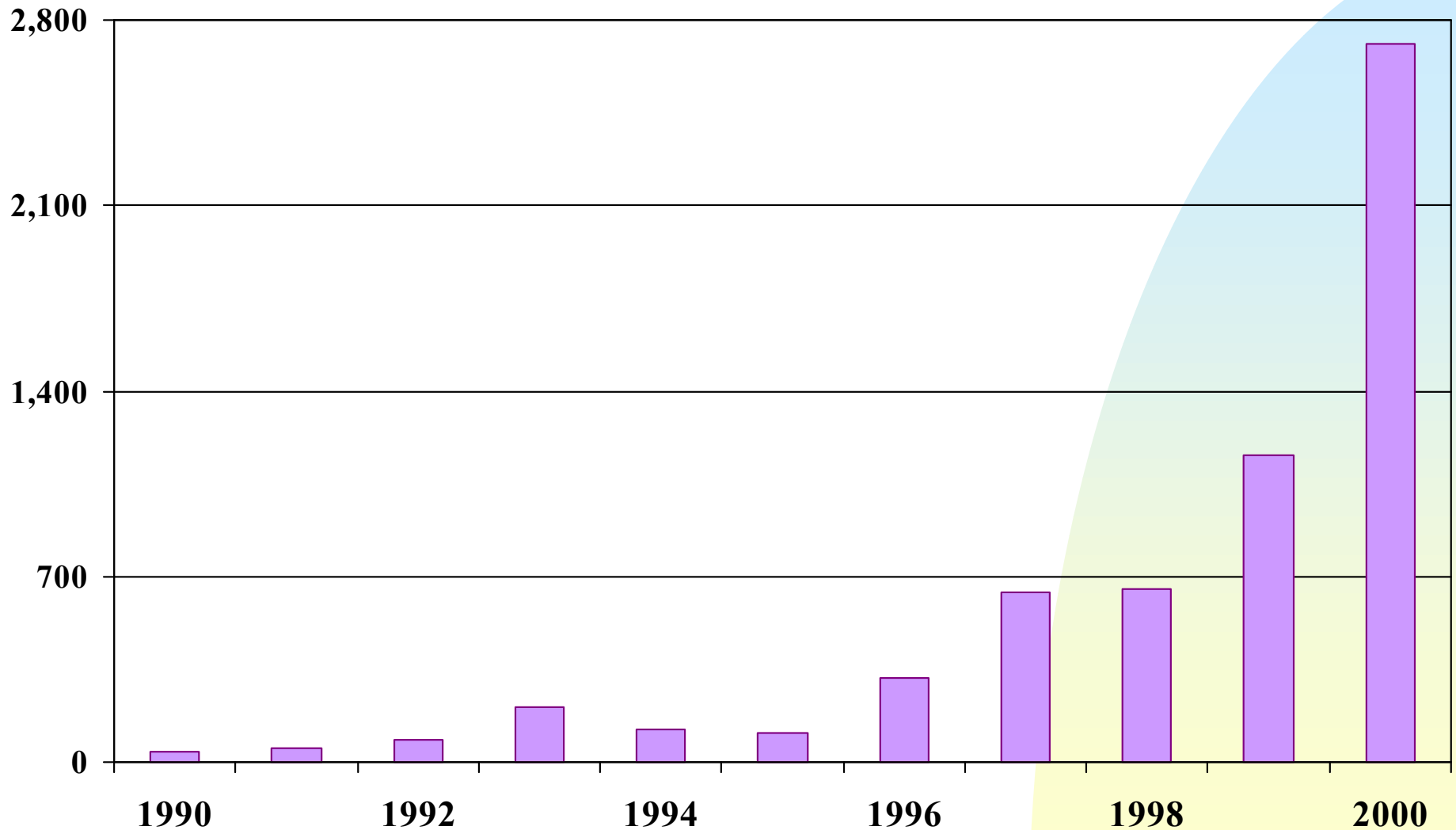
# THE YOZMA PROGRAM

## **Objective: Creation of a VC 'Industry'**

- Government Investment 100M\$ that leveraged 150M\$ from private investors
- Created 1+10 private VC Funds
- Limited Partnership form of VC organization
- Upside incentives and planned privatization

**Outcome: VC Industry emergence and significant growth in the high tech cluster**

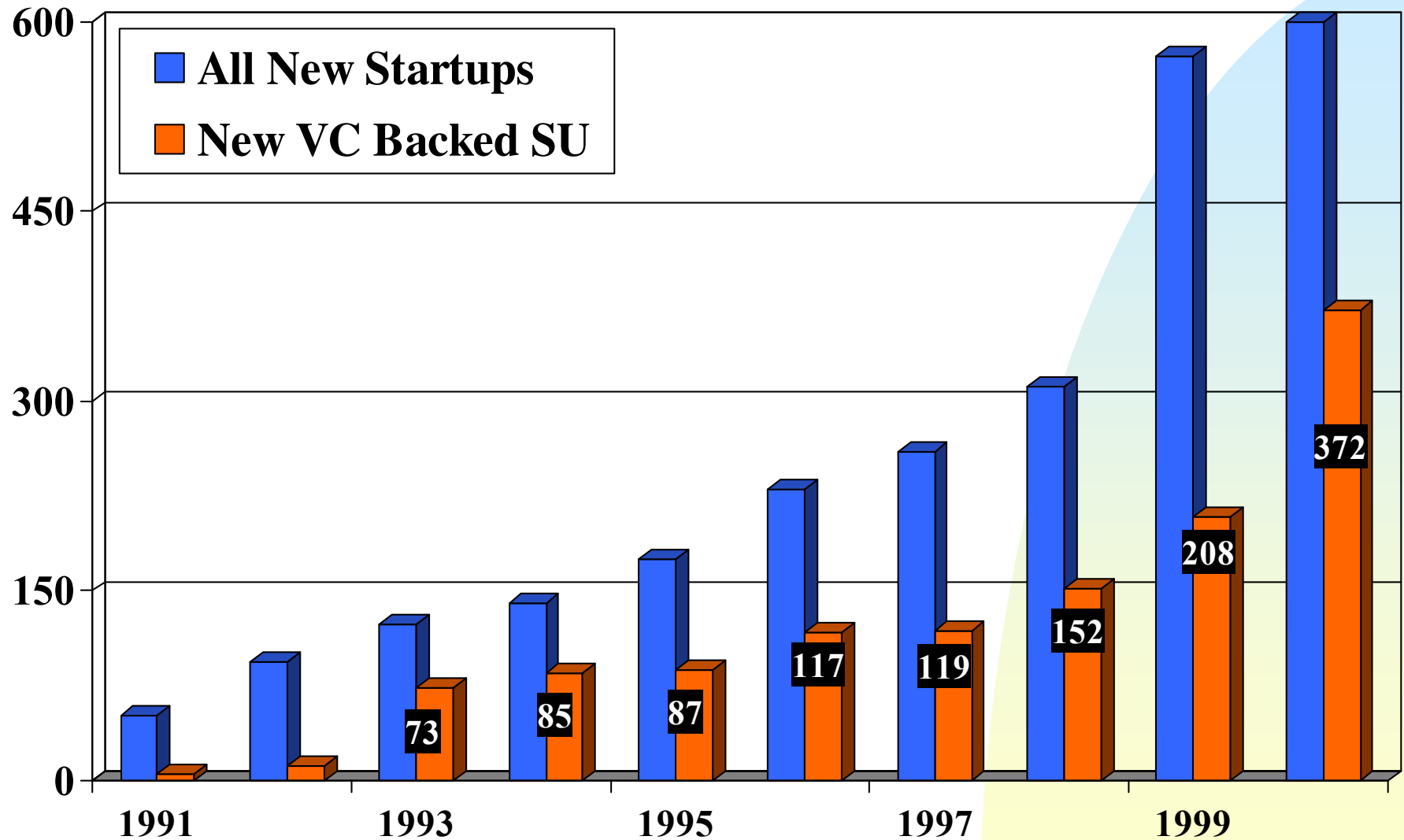
# Israel's VC Fundraising (M\$): 1990-2000



<sup>8</sup>  
Source: IVC 2008

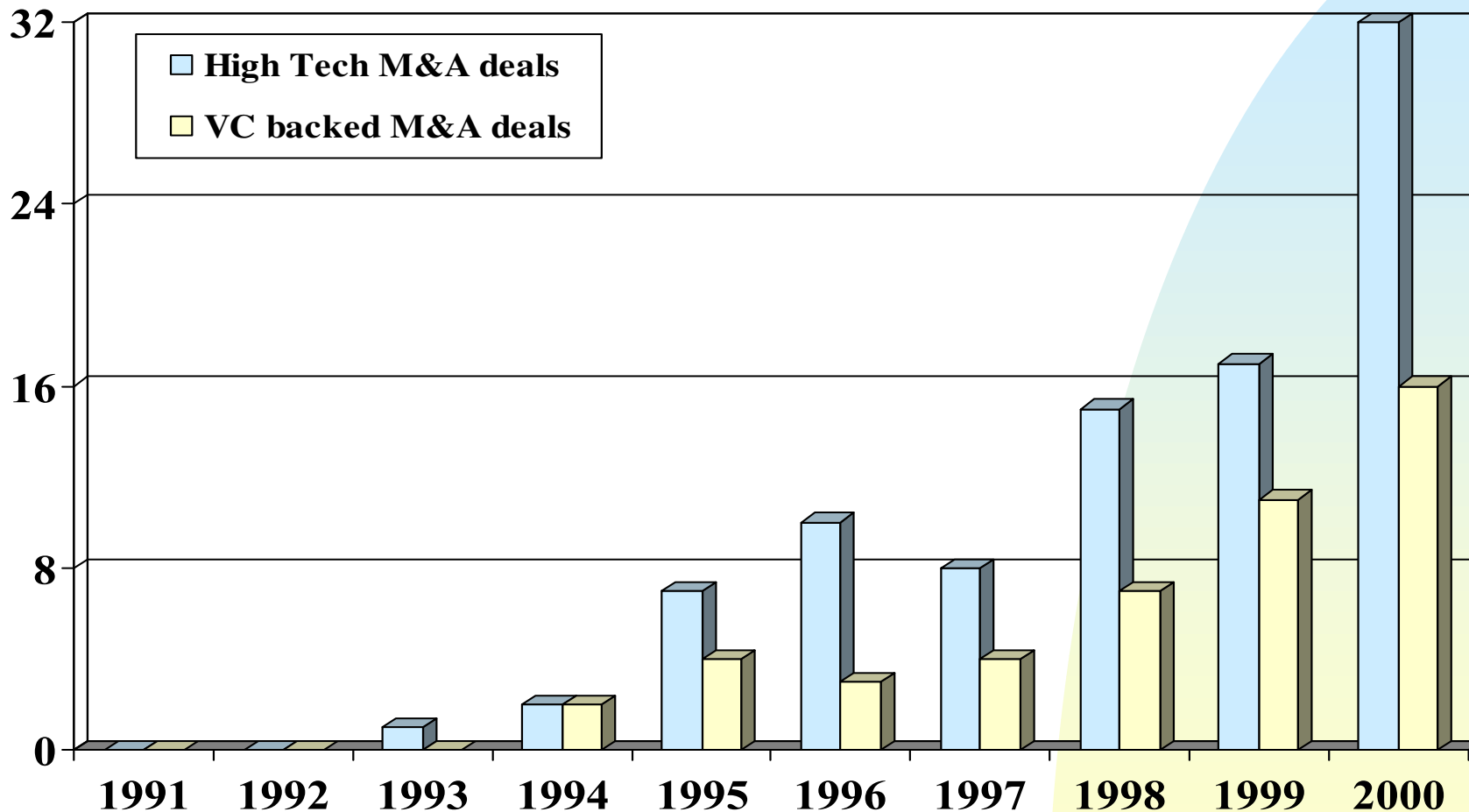


# Startups foundation: 1991-2000



9  
Source: IVC 2008

# Israeli high tech companies that were targets in significant M&A deals 1991-2000



10  
Source: IVC 2008

# Initial Findings - I

- The VC industry emergence had a significant impact on the development of the Israeli high tech cluster
- However, there are significant drawbacks associated with a high tech cluster linked to a dominant VC industry
  - **Concentration mainly in metropolis areas**
  - **Concentration on narrow technological fields**

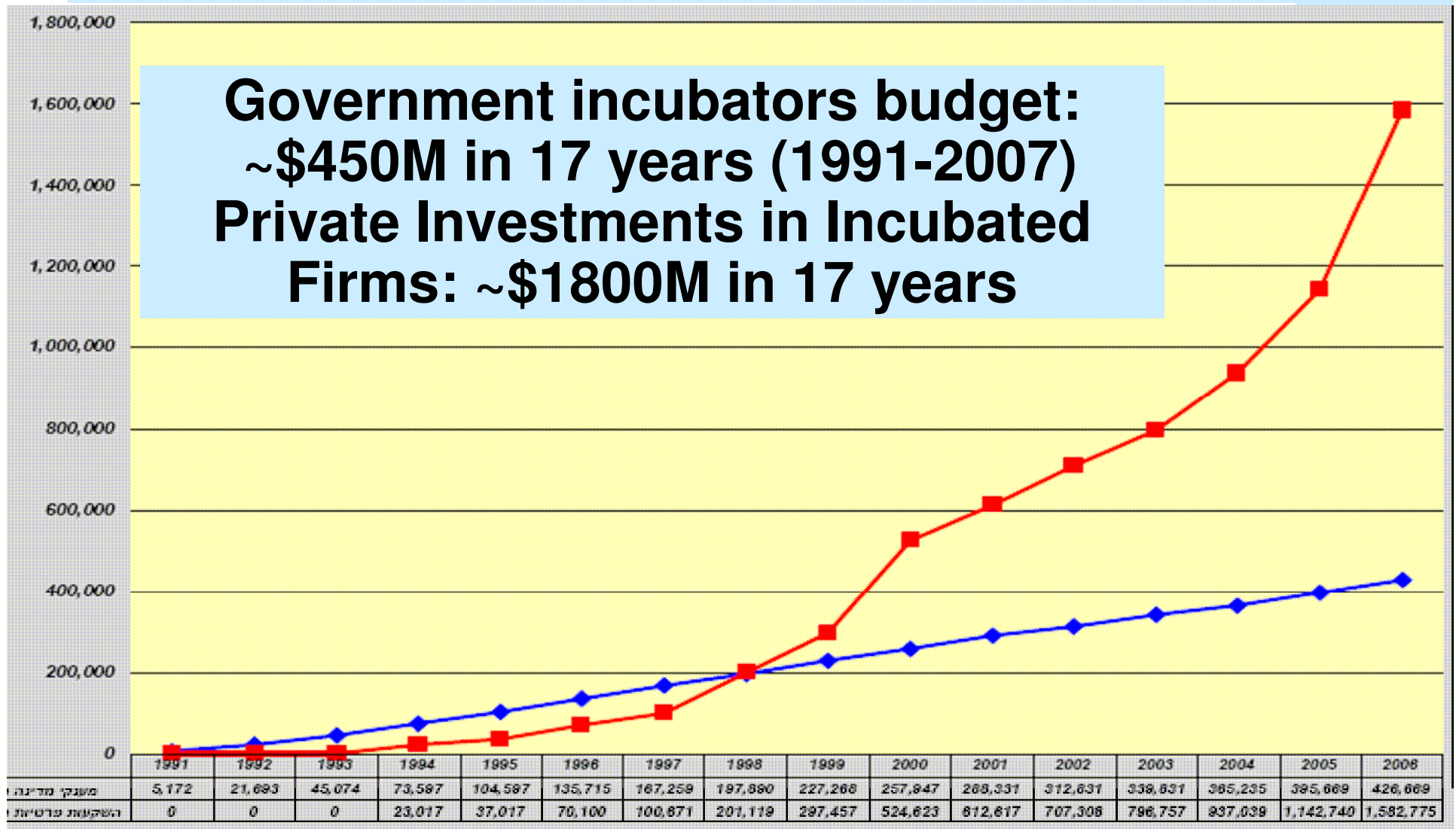
# Technological Incubator Program

- 28 Incubators were established during 1991-1993
- 4 of them were closedown
- Its privatization began at 2001- almost finished

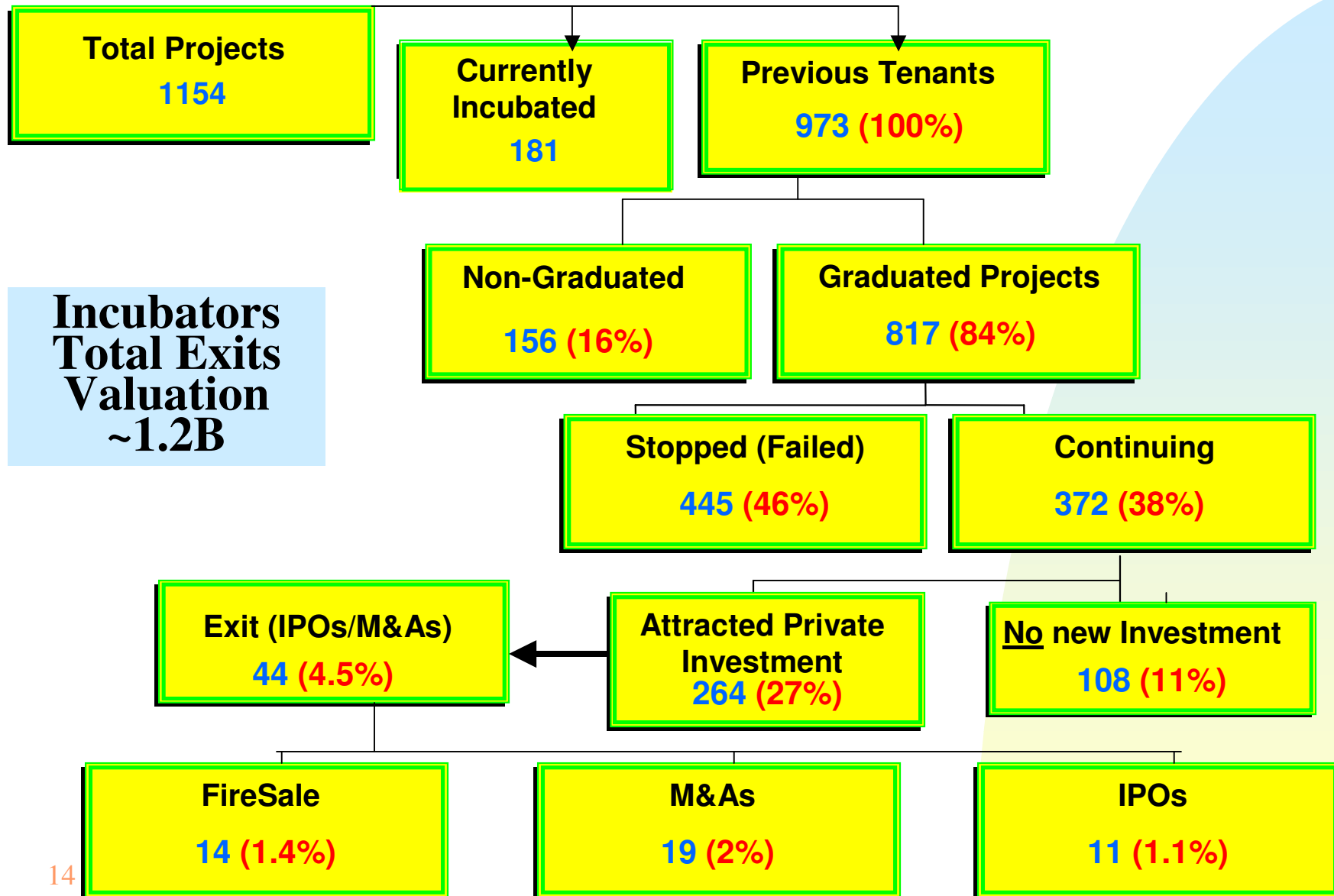
## **Its official objective were:**

- Supporting entrepreneurs at the earliest stages of technological development
- Encourage new export oriented industries
- Create new employment opportunities for technologically skilled persons (immigrants)

# Public vs. Private Investments in Incubators' Projects



# Summary of Projects 1991-2007



# Israeli Startups (1996-2005) by Regions

	Entire Population	VC Backed	Incubator	VC & Incubator
<b>North</b>	16.8%	13.8%	35.5%	30.9%
<b>Center</b>	70.7%	79.9%	40.3%	56.5%
<b>Jerusalem</b>	7.3%	5.0%	7.5%	9.5%
<b>South</b>	5.2%	1.3%	16.7%	3.1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

# Israeli Startups (1996-2005) by technological Fields

	Entire Population	VC Backed 836	Incubator 864	VC & Inc 136
<b>ICT</b>	56.5%	71.1%	18.8%	36.8%
<b>Life Science</b>	23.0%	19.7%	42.0%	44.6%
<b>CleanTech</b>	7.7%	1.9%	20.9%	6.6%
<b>Other</b>	12.8%	7.3%	18.3%	11.0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>



# Initial Findings - II

- The technological incubators program enhanced the development of the Israeli high tech cluster
- However, the direct results of the incubators are quite disappointing – very low exit rate
- On the other hand, the incubators do not suffer from the drawbacks of the VCs – they have more diversified investment pattern (geographical and technological)

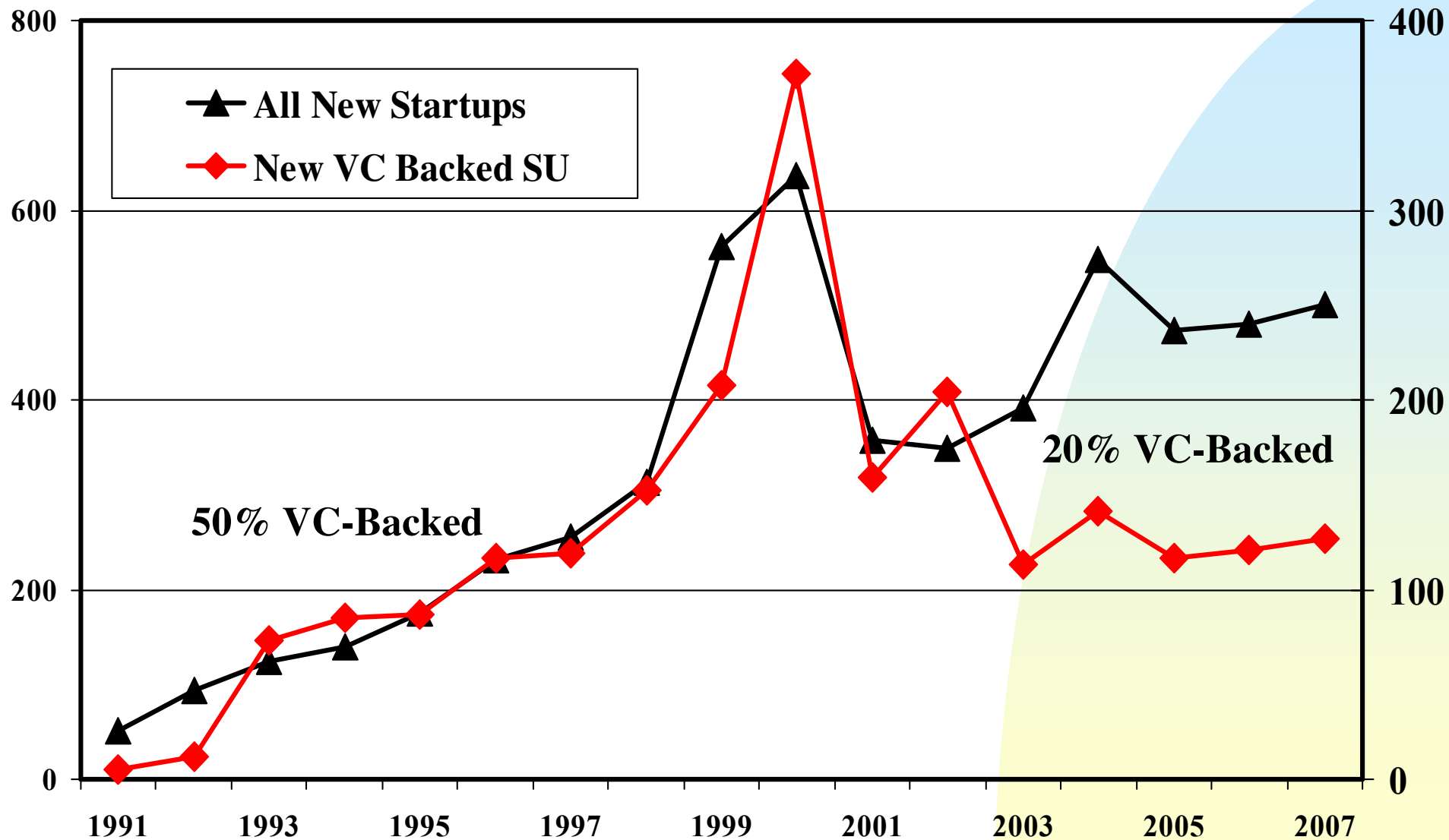
# Startups Successful Exit by Groups (1996-2005)

	Entire Population	VC Backed	Incubator	VC & Incubator
Total	9.5%	26.7%	4.9%	9.6%

# Conclusions

- There are potential synergies between VC funds and technological incubators
- We suggest that in the post-emergence phase the incubators' objectives should be: 1) dealing with the drawbacks related to VC investments; and 2) improving the incubators' operation & performances
- The privatization process is a step in the right direction
- More generally speaking, there are significant synergies between different types of financing agent in the VC market – we should seek to create more diversified VC markets

# VC-Backed Startups: 1991-2007



20  
Sources: IVC 2008

# Comparison of Success Rates of Various VC Agents (1991-2000)

	<b>Exit</b>	<b>Survival</b>	<b>Closed</b>
<b>All Startups</b>	<b>13.5%</b>	<b>42.7%</b>	<b>43.8%</b>
<b>Incubators</b>	<b>3.8%</b>	<b>34.0%</b>	<b>61.5%</b>
<b>Self-Finance &amp; OCS Grants</b>	<b>8.2%</b>	<b>49.1%</b>	<b>42.7%</b>
<b>Investment Companies</b>	<b>17.6%</b>	<b>48.8%</b>	<b>33.6%</b>
<b>Private Investors</b>	<b>22.4%</b>	<b>53.5%</b>	<b>24.1%</b>
<b>Domestic VC</b>	<b>22.6%</b>	<b>44.9%</b>	<b>32.5%</b>
<b>Foreign VC</b>	<b>26.8%</b>	<b>49.2%</b>	<b>24.0%</b>
<b>Corporate VC</b>	<b>33.9%</b>	<b>49.1%</b>	<b>17.0%</b>

# Investment Stages of Different Types of VC agent in Israel (1991-2000)

	Seed	Early	Mid	Late
<b>All Investments</b>	<b>19%</b>	<b>35%</b>	<b>40%</b>	<b>6.0%</b>
<b>Incubators</b>	<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
<b>Private Investors</b>	<b>41%</b>	<b>33%</b>	<b>23%</b>	<b>3%</b>
<b>Investment Companies</b>	<b>22%</b>	<b>36%</b>	<b>36%</b>	<b>6%</b>
<b>Domestic LP VC</b>	<b>20%</b>	<b>43%</b>	<b>33%</b>	<b>4%</b>
<b>Foreign LP VC</b>	<b>14%</b>	<b>36%</b>	<b>44%</b>	<b>6%</b>
<b>CVC</b>	<b>7%</b>	<b>28%</b>	<b>58%</b>	<b>7%</b>

# Israeli Startups (1991-2000) Technology Location Quotients

	Comm	Soft	Internet	MD	BIO	Other	All
Incubators	0.13	0.34	0.20	1.69	1.44	2.14	1.00
R&D Grants	0.63	0.57	0.19	1.70	1.87	1.57	1.00
Academic Spinout	0.55	0.14	0.45	1.46	7.73	1.01	1.00
Investment Co.	1.33	1.06	0.89	0.93	1.22	0.76	1.00
Private Investors	1.17	1.10	1.09	1.00	1.18	0.74	1.00
Domestic LP VC	1.53	1.14	1.00	1.10	0.96	0.50	1.00
Foreign LP VC	1.87	1.31	0.89	0.78	0.84	0.31	1.00
CVC	1.66	1.36	0.55	0.64	0.40	0.68	1.00
All Startups	1.00	1.00	1.00	1.00	1.00	1.00	1.00

# Israeli Startups (1991-2000) Geographical Location Quotients

	Tel Aviv Metropolis	Haifa & Jerusalem	North & South	All
Incubators	0.54	1.23	2.60	1.00
OCS R&D Grants	0.77	1.41	1.48	1.00
Academic Spinout	0.72	2.50	1.06	1.00
Investment Companies	1.06	1.02	0.53	1.00
Private Investors	1.13	0.94	0.53	1.00
Domestic LP VC	1.14	0.75	0.60	1.00
Foreign LP VC	1.21	0.68	0.36	1.00
CVC	1.18	0.67	0.31	1.00
All Startups	1.00	1.00	1.00	1.00