

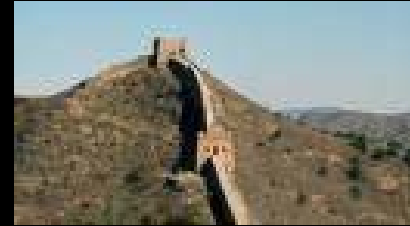


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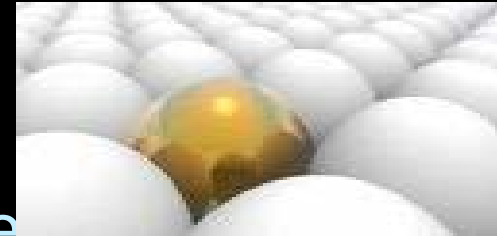
# ***VENTURE CAPITAL AND ENTREPRENEURSHIP PAST, PRESENT, & FUTURE?***

# Overview

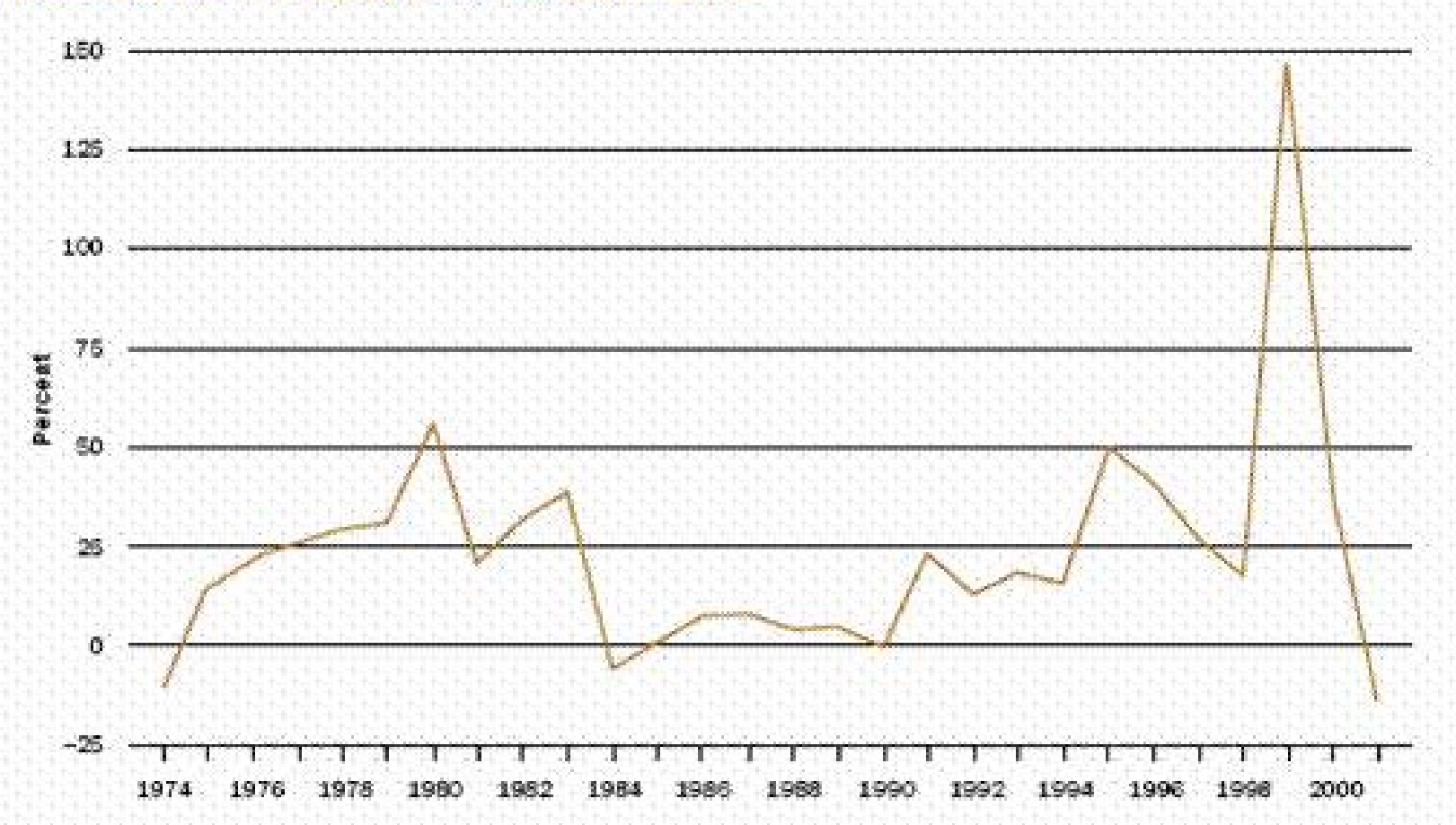


- A retrospective – VC in the 1970's - 1990's
- The current situation - 21<sup>st</sup> century
  - Bursting bubble, then slow recovery - tight in '08-'09 (as was everything else financial)
  - The word on the street from "the experts"
- A Prospective – what does the future hold?
- Pittsburgh as a mini case → 1996 – present

IRR not so good  
current 10yr avg. negative



Returns to Venture Capital Investments, 1974-2001



## *The Venture Capital "glass"*



*Half empty or half full?*

# Historical 1960-2000



- VC – major innovation “driver” 1960-2000
  - Industries were created (computers/semiconductors, software/IT/internet, biotech/biomedical)
  - Jobs were created (innovation clusters in Silicon Valley, Boston, San Diego, etc.)
- Returns to investors with IRR > 25% (3X over 10 years)
  - Emerged as alternative investment class
- Booms and busts occurred, and for each bust there is persistent pessimism (e. g. 1980, 1990, 2000)
  - “performing funds” have grown, others “close shop”

# *VC recovered slowly, but tight in '08- '09*



- VC investments down from ~\$30B per year to \$17.7B in '09 (37% less cash, 20% fewer deals from '08 to '09)
- What's the status?
  - Silicon Valley, Boston still on top as regions
    - 10 year returns dropped to 14 % from 36% in 2000
    - Funds raised \$15.2 Billion a 47% decline from '08
    - IPO exits are few and far between
  - Angels making up for "loss of appetite" at early stage – risk aversion, but also down to \$17.6B in '08
  - But good deals still getting done – especially for companies with product/technology, traction and strong teams (3Ts)

# Wisdom from Sequoia (2008)

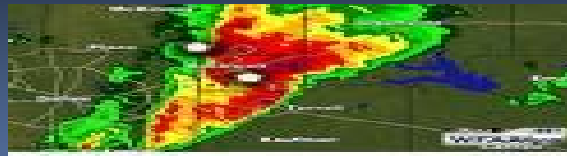
## The Entrepreneurs Behind the Entrepreneurs

### Entrepreneurs

- \$15M raise @ \$100M post is gone
- Series B/C rounds will be smaller and harder
- Customer uptake slower
- Need to become cash flow positive and capital efficient
- Establish a competitive advantage and "must have" product

### Venture Capitalists

- VC fund raising
  - First time fund (no way)
  - 2<sup>nd</sup> or 3<sup>rd</sup> tier (no way)
- Expect misses on capital calls → private equity then VC
- IPOs will and M&As will be harder



The Perfect Storm!

# Half Empty Perspective



- Roger McNamee – Elevation Partners (NYT Feb. 2009)
  - “The venture capital industry has lost its way and it needs to reinvent itself”.
- Paul Kedrosky – Kauffman Foundation
  - “VC is continuing to invest in IT companies since they always have”
  - “ for the industry to consistently generate competitive returns, annual investment and money under management needs to fall by more than half”

# More half empty



- Paul Ferri – Matrix Capital, WSJ 2006
  - the industry does not now have “an economically viable business model”
- Mark Andreesson – “put money into lots of tiny companies, quickly discarding ideas that flame out and feed those that work.” More shots on goal!
- AAB comment – does it need to adapt to the reality that different segments may need different models?
  - Biotech and IT are very different
  - Cleantech and tech are very different

# *But, some say it's half full*



- Tim Mullaney – Bloomberg Business Week (Feb 1 & 8, 2009)
  - NEA just raised a new \$2.48B fund (NEA 13). 20x size of average fund raised last year
  - How can they generate returns large enough with the current IPO situation?
    - Put “dabs of money” in lots of startups - (\$1M) vs. \$20M+
    - Dick Kramlich of NEA argues that to solve real problems these companies need real money – cites new drugs, new clean tech



# Enter Policy Concerns



- Josh Lerner – Harvard Business School in *Technology Review*, March/April 2010
  - Programs worldwide have tried to boost innovative ventures. “Funds end up getting distributed poorly”.
  - “Groups raised huge amounts of capital that they invested foolishly, either funding entrepreneurs who never should have raised capital in the first place, or else giving far too much money to promising entrepreneurs”.
  - “look carefully at firms which private investors think are viable”. “focus on firms that have raised matching, private funds”. “VC funds 3-4X more potent” as corporate R&D.

# Bright Future



- Steve Jurvetson – Draper Fisher Jurvetson (in *Technology Review*, March/April 2009) – the pace of innovation never falters
  - “The pace of innovation is accelerating and is exogenous to the economy. Technology’s non-linear pace (Moore’s Law) of progress has created a juggernaut of perpetual market disruptions”.
  - “Entrepreneurs and VCs have to follow disruptions across markets”. There are never enough VCs, entrepreneurs, or money.
    - Scalable quantum computing
    - First synthetic life – 100% of DNA made from scratch

# Positive Perspective



- James Bartlett, Managing Editor of VCExperts, 3/23/2010: Buzz Article – short paraphrase as follows
  - Venture-backed economy has flourished since WW II – confluence of government policies, well founded market influence and directions (Inspired Metrics).
    - Half full - Should we unblock and enlarge the supply of promising deals (unblock the barriers). “It is in our national interest to use a more enlightened response to a disequilibrium in the supply/demand equation” - AAB comment → develop more enlightened industry specific business models for VC investing?

# *A Balanced Overview*



- James Surowiecki – The New Yorker (in Technology Review, March/April 2009)
  - “If VC is necessary and useful, then why does it matter from a societal point of view if it’s oversupplied. What we care about when it comes to venture capital is not whether investors get good returns or VCs are well paid. We care about whether new companies are getting started and innovations are being funded”.

# *VC is part of the solution*

- VC not always important
  - 1997-2007 → 16% of Inc. 500 received VC (Kauffman Foundation – Paul Kedrosky)
- Some opportunities not appropriate for venture capital
  - Angels, bootstrapping, etc.
  - Angels each invest in comparable amounts to VCs – and are organizing!

# *Industry specific needs*

- Biotech and Clean Tech (and New Space)
  - Long life cycle – 10 years plus
  - High capital investment - \$100M or more
  - Very high risk - < 10% success rate
  - Is current VC model suited to this kind of investment?

Work funded by Foundation for Enterprise  
Development, LaJolla, CA at Tepper School of  
Business

# *Alternative Capital-Efficient Business Models*

- Public Private Partnerships
  - Coupling VC, corporate and public funding
- Collaborative, Team Based, Networked Innovation
  - Smaller funds coupled to larger funds (Khosla Ventures)
  - Open Innovation Networks
    - FIP Net at Eli Lilly
  - Partnered business models (with senior leadership teams)
  - Enlight Biosciences, LLC (Lilly, J&J, Pfizer, VC to fund opportunities carried out by “seasoned entrepreneurs”)
  - Third Rock Ventures – back to basics
  - AcceleMed
- Nurture Shared Capitalism and Employee Ownership
  - provide incentives for entrepreneurs to create value

# Pittsburgh – 1996 to 2010

## 1996

- UPitt - OTM founded
- CMU – TTC initiated several years earlier
- Ben Franklin Program
- Enterprise Corporation as a CMU initiative
- One VC firm – CEO Ventures
- Few startup companies

## 2010

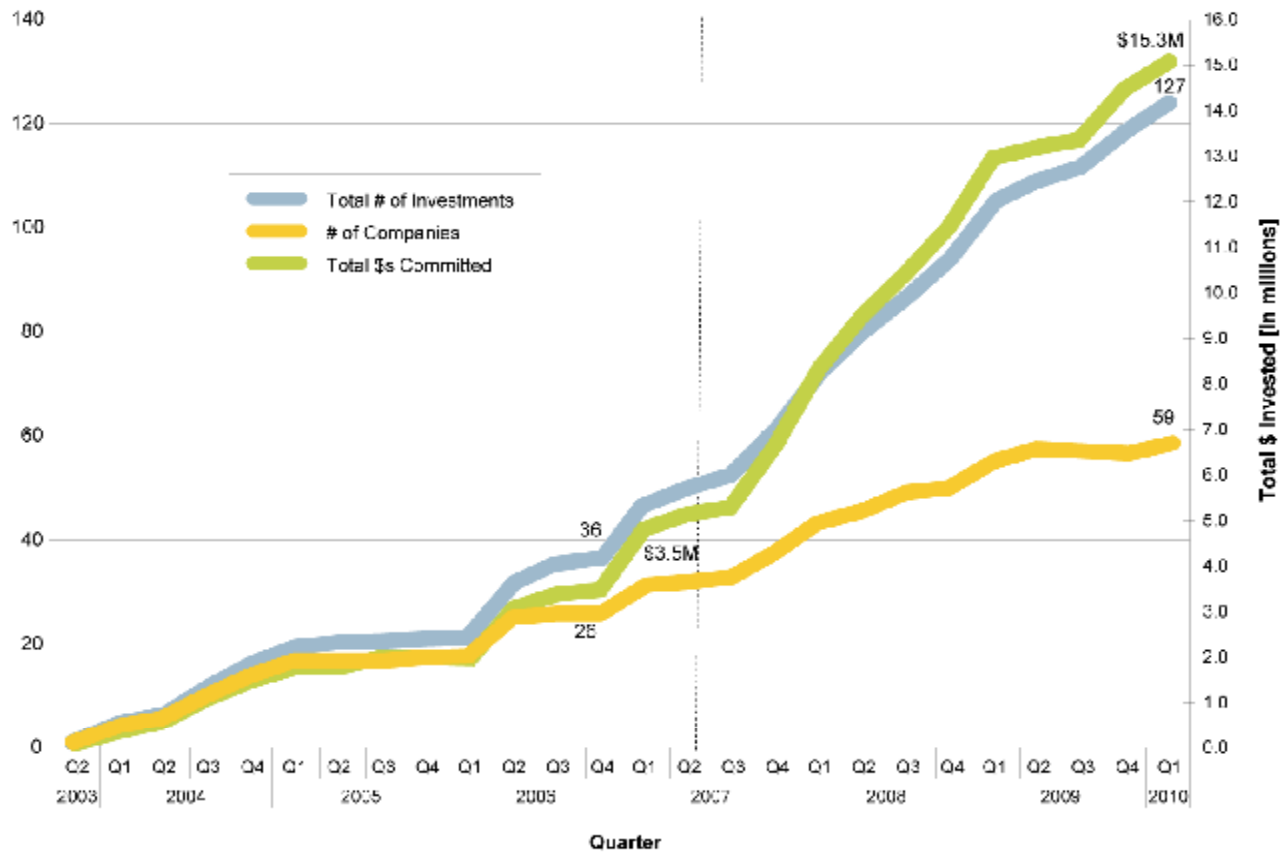
- CMU ecosystem mature
  - Corp. Innovation Center attracting major corporations
- TBED Community contributing
- Angel groups organized
- Multiple VCs - \$22M in Q1 – '10
- Technology and Biomed. cluster maturing

# *Innovation Works*



Innovation Works

- Innovation Works' portfolio companies reflect the deep technology strengths of this region: computer science, internet software, gaming technology, nanotechnology, life sciences, robotics and clean energy.
- In 2008, invested \$5.4M in 84 new start-ups in our portfolio.
  - IW portfolio companies raised \$149M in follow-on funding, representing nearly two-thirds of the Pittsburgh region's VC investments.



# Recent CMU/Tepper Companies

- **Plextronics ('01)** - \$14M B1 Rd in Aug. '09 (\$41 M since '02)
- **Dynamics ('09)**
  - \$5.7M A Rd. w/Adams in Sept '09
- **Mod Cloth ('07)**
  - Co-founders - top 30 under 30 by Inc. '09
  - Triple digit revenue growth
  - A-round in progress
- **ClearCount Medical ('04)**
  - Time Mag., Runner up in WSJ Innovation Awards for '09 - \$3M+ A1 Round, \$8M+ since '04, B round in progress)
- **College Prowler ('02)**
  - Fast Co. – '05- top 50 fastest growth