

## Entrepreneurship and Venture Capital

**Jerome S. Engel**

Adjunct Professor, Haas School of Business  
Executive Director, Lester Center For Entrepreneurship and Innovation  
University of California at Berkeley

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley

Copyright © 2005 J.S. Engel

## Jerry Engel



- UC Berkeley
  - Founder and Executive Director of the Lester Center for Entrepreneurship and Innovation
  - Chair: Entrepreneurship Faculty
  - Teach Entrepreneurship, Venture Capital & Private Equity, Technology Commercialization in the MBA and Executive Ed
- Outside of Academe:
  - Venture Capital
    - Monitor Venture Partners, General Partner
    - Co-founded: Kline Hawkes Capital early '90s
  - Entrepreneur
    - Co-Founder: AllBusiness.com, ElectraScan Inc., CardioProfile
    - Angel Investor, Board member, Advisor: Maxis, Leapfrog, MedAmerica
  - Big Company Experience
    - 1980s: Ernst & Young, Managing Partner, Entrepreneurial Services
      - » Clients: Apple, Intel, Genentech, Sun, Autodesk, Fair Isaac, The Learning Company and more..
    - 1970s: KPMG

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley

Copyright © 2005 J.S. Engel

## Entrepreneurship and Venture Capital

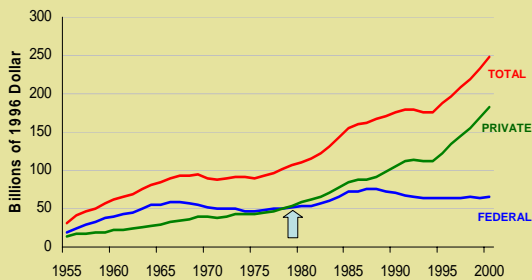
- What are the Drivers of Innovation?
- Why are Entrepreneurship and Venture Capital Important?
- What is Entrepreneurship?
- How Does Venture Capital Work?
- What are the current trends?
- What does all this mean to me?

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley

Copyright © 2005 J.S. Engel

## Drivers of Innovation in the US High Tech Model

### U.S. Example: Private R&D Spending Increasing



Note: Expenditures are deflated using the GDP implicit price deflator.  
Source: National Science Board (2000) and Economic Report of the President (2002)

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley

Copyright © 2005 J.S. Engel

### The Proportion of Research Expenditure at Our Largest Corporations is Decreasing

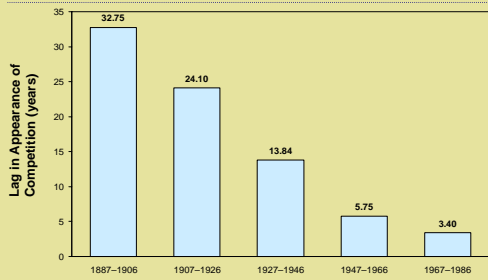
Company Size	1981	1989	1999	2000
<1000 employees	4.4%	9.2%	22.5%	22.4%
1,000 - 4,999	6.1%	7.6%	13.6%	15.4%
5,000 - 9,999	5.8%	5.5%	9.0%	8.4%
10,000 - 24,999	13.1%	10.0%	13.6%	14.4%
25,000+	70.7%	67.7%	41.3%	39.5%

Original - H. Chesbrough, 2003 Updated J. Engel 2003  
Source: National Science Foundation, Science Resource Studies, Survey of Industrial Research Development, 1991, 1999 and 2000.

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley

Copyright © 2005 J.S. Engel

## Time to Market Adoption Continues to Decrease



Interval between the introduction of an innovation and competitive entry, 1887-1986. Agarwal and Gort 2001

## What is Entrepreneurship ?

- An approach to management that starts with **opportunity**
- Not just small companies
- Not just start ups
- Not simply promoters



## Entrepreneurship Bridges the Gap



## Entrepreneurship is:

- A process
- Not a person
- About BIG companies that happen to be small
- Not about small business
- Important to BIG business

## Entrepreneurship

The pursuit of Opportunity beyond the Resources you currently control



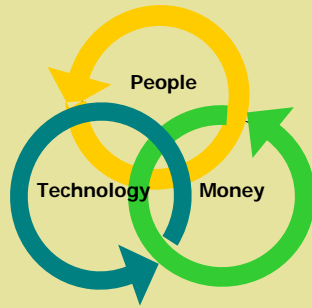
Prof. Howard Stevenson  
Working Definition

## Entrepreneurial Process

- **Identify** → Opportunity
  - Need
  - Solution
  - 'Unfair Advantage'
- **Acquire** → Resources
  - Technology rights
  - People
  - Money

## The Entrepreneur's Task....

- Key Resources
  - Technology
  - Money
  - People

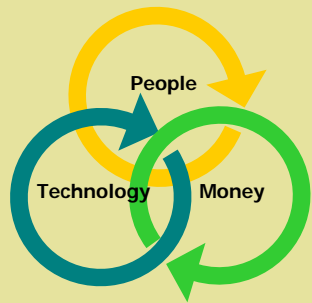


## Major Trends.....

- Technology
  - Discoveries of large companies and universities commercialized by small companies
- Money
  - From Venture Capitalists: new structures for pooling risk-tolerant investors
- People
  - The rise of the professional entrepreneur and **entrepreneurial teams** as a management process

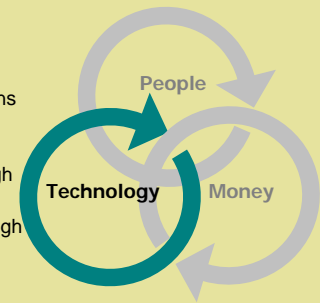
## Entrepreneurial Process

- Key Mechanisms:
  - **Mobile** Technology
  - **Mobile** People
  - **Mobile** Money



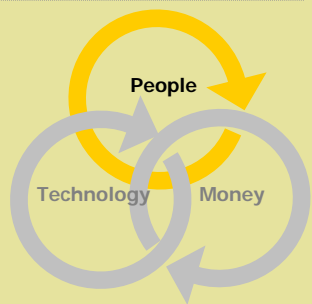
## Entrepreneurial Process

- **Mobile** Technology
  - Transfer of technology from research institutions to commercial application
    - Formal - through licensing
    - Informal - through people



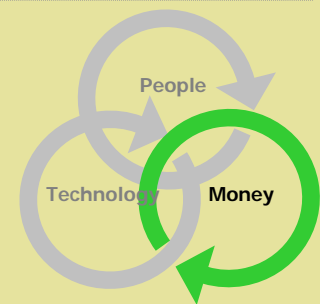
## Entrepreneurial Process

- **Mobile** People
  - The emergence of the "professional" entrepreneurial management team
    - Lifestyle: personal mobility, multiple employers
    - Equity compensation
    - Acceptance of the risk of failure



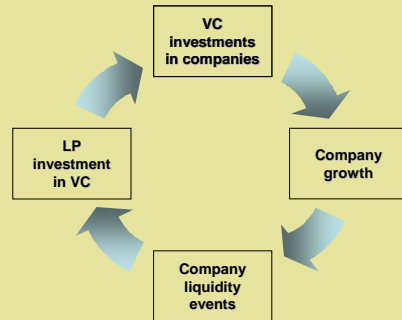
## Entrepreneurial Process

- **Mobile** Money
  - New forms of Private Equity
    - International investments by US Venture Capital
    - Multinational corporations become more active
    - Buy-out funds becoming more active
    - Increased sophistication of the Angel communities

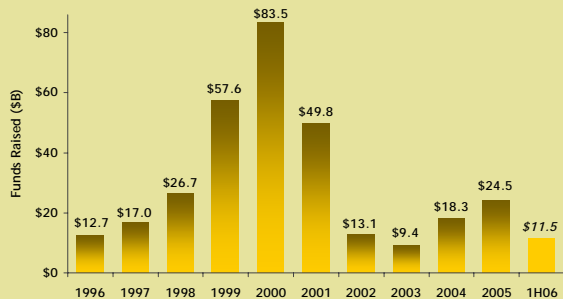


# Venture Capital Some Fundamentals

## Liquidity Cycle in Venture Capital

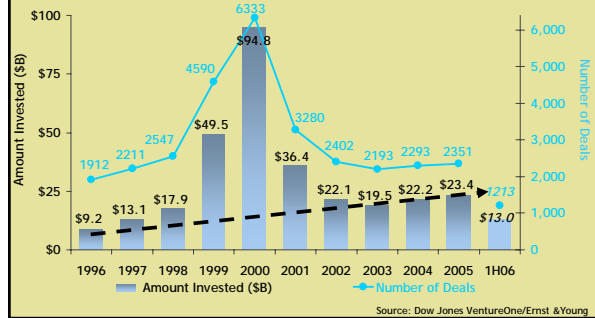


## VC: A Cyclical Industry *US Fundraising*



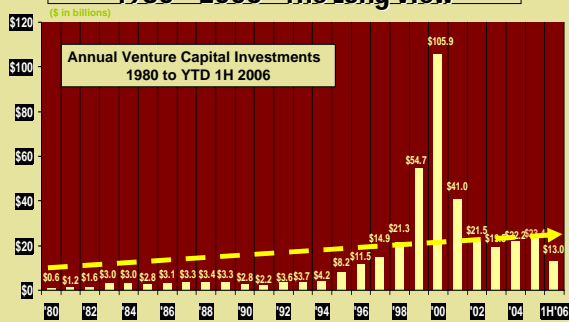
## Investment Levels Reflect the Same Cycle

*Deal Flow and Equity into Venture-Backed Companies*



Source: Dow Jones VentureOne/Ernst & Young

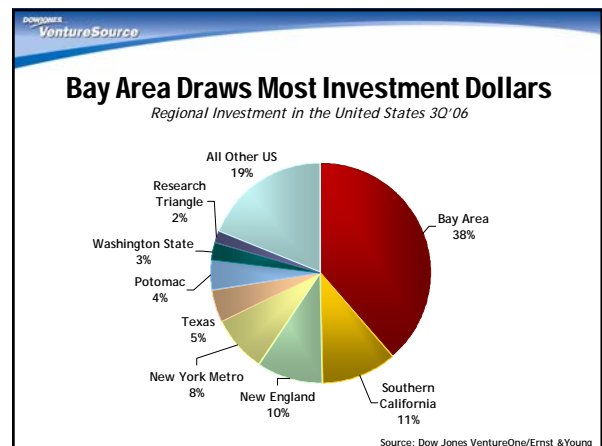
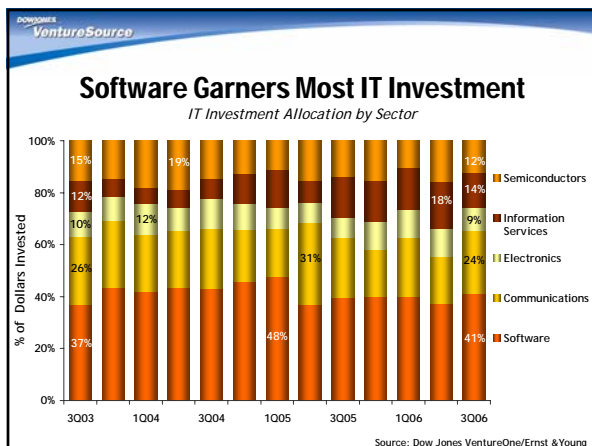
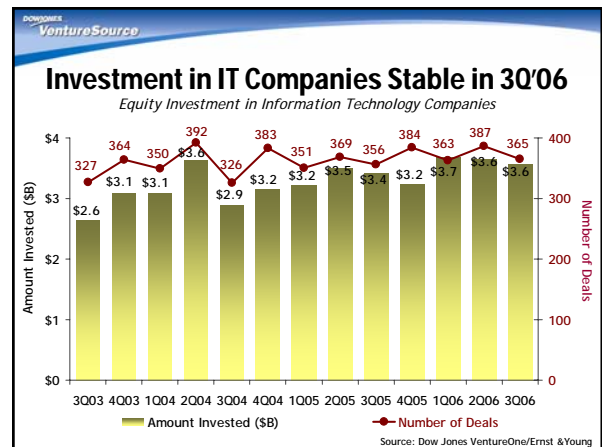
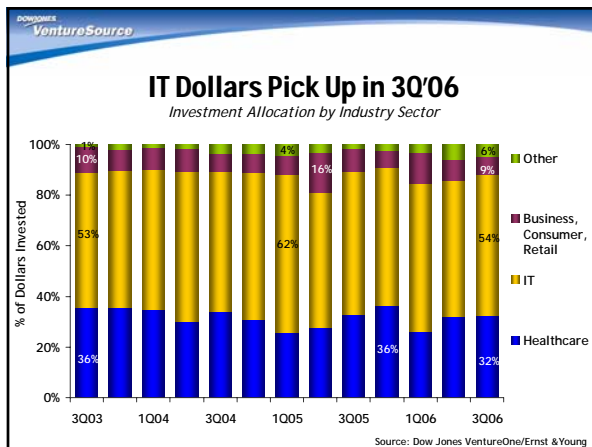
## VC Investment 1980 – 2006 The Long View

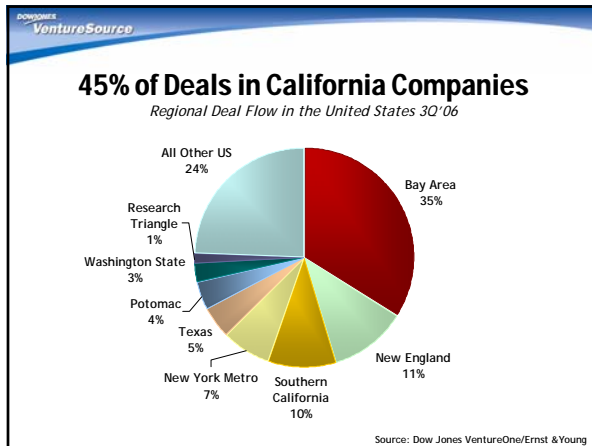


## Venture Capital Industry and Geographic Influences

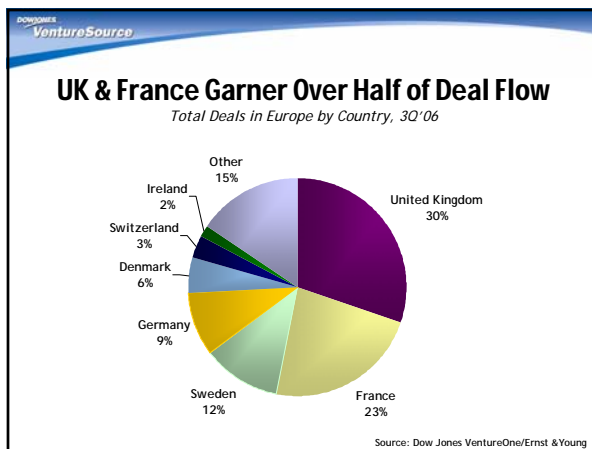
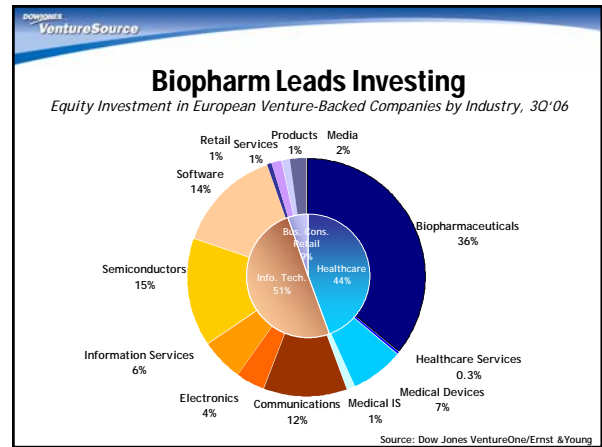
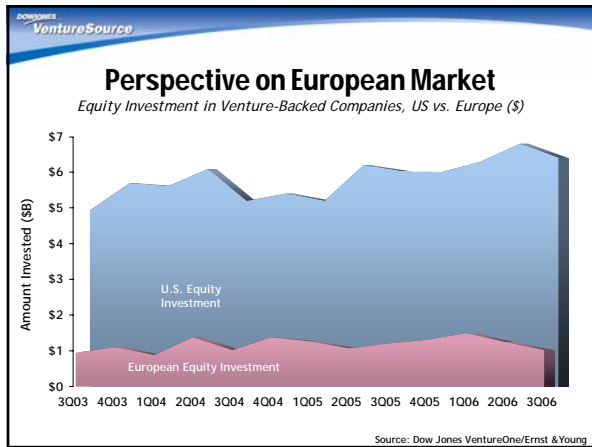
- VC investment is cyclical but on a long term upward trend
- Investment Capital for Entrepreneurial Ventures tends to clump
  - By Region
  - By Industry
- It is important to understand where VC financing works and Where it does not
- Operating outside the mainstream can add significantly to financing challenges and risk

**U.S. Investment: Overall**





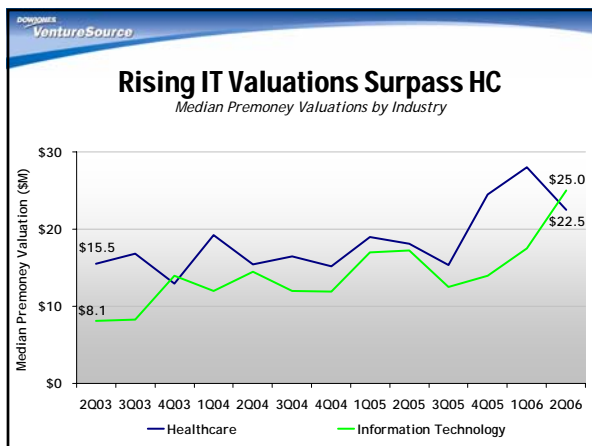
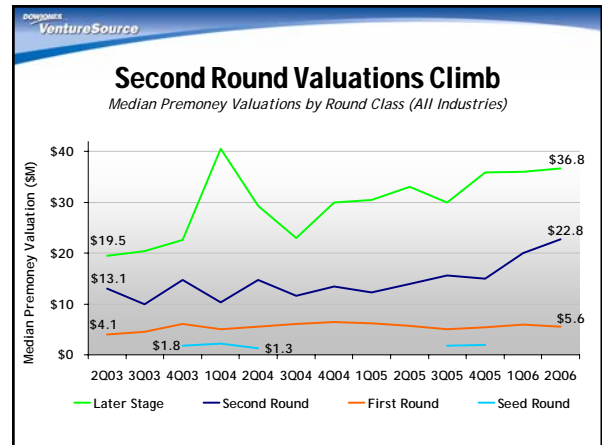
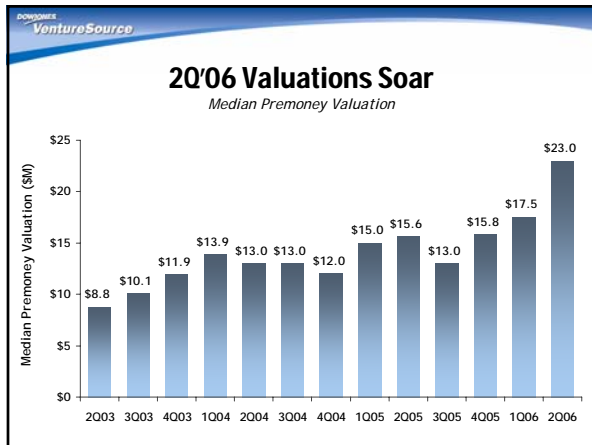
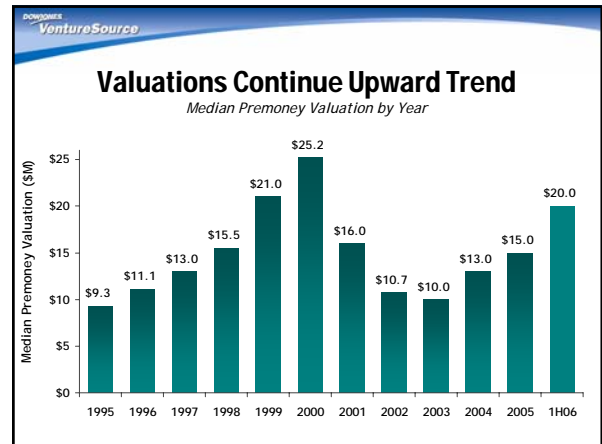
# European Investment: Overview



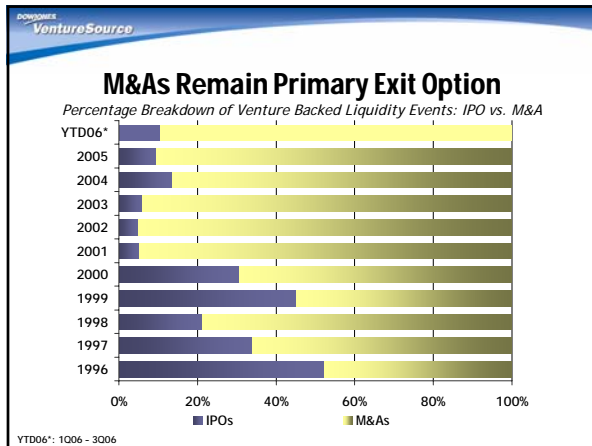
# Valuation of the Venture Capital Funded Venture

**U.S. Investment:  
Valuations**

This section will be updated in December.



# U.S. Liquidity

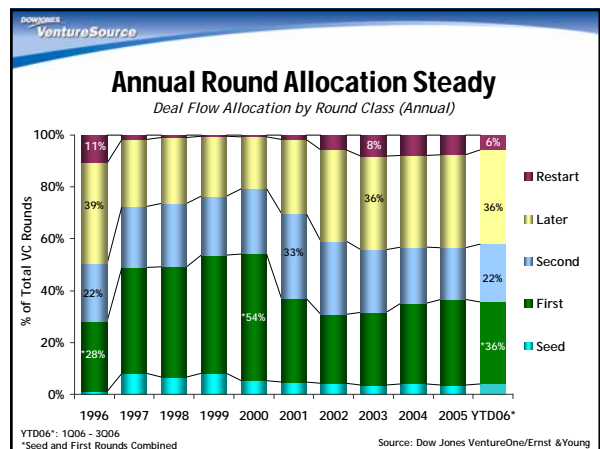
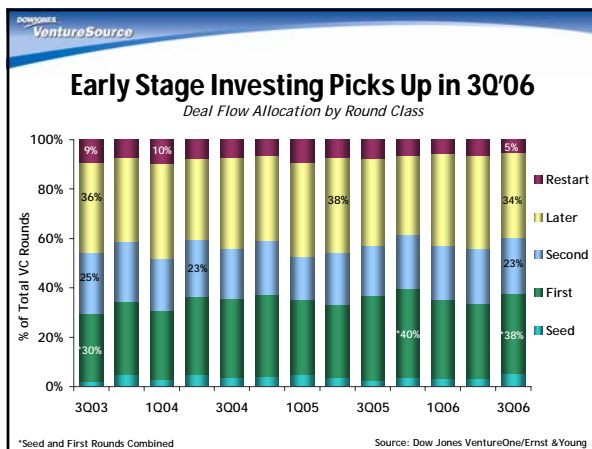
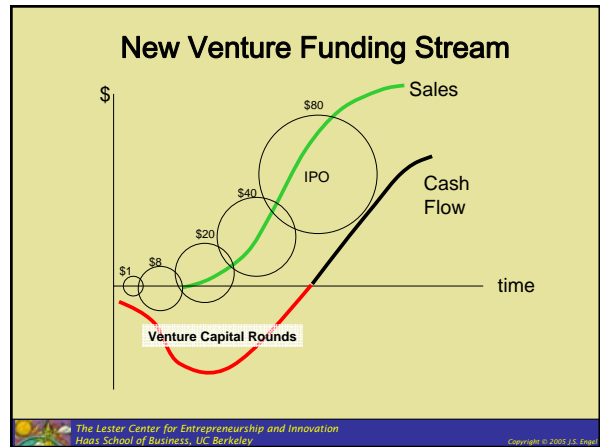


### What are the Trends we have Observed?

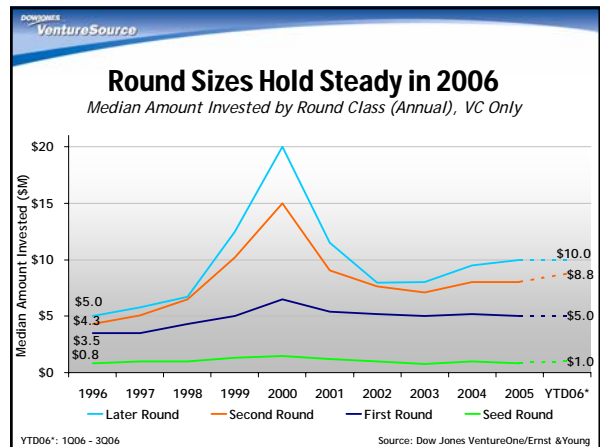
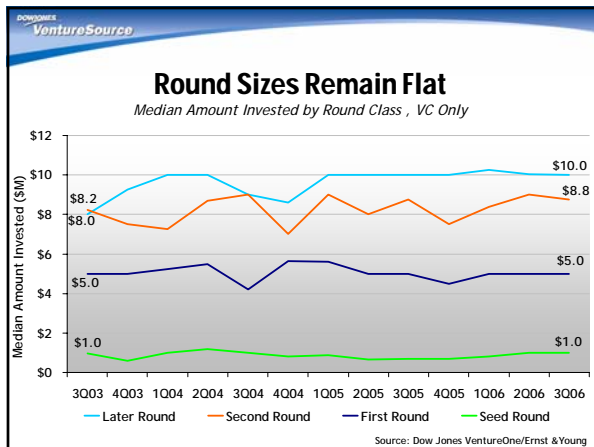
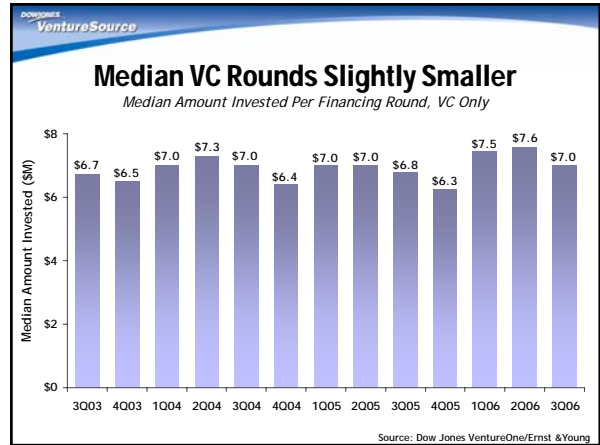
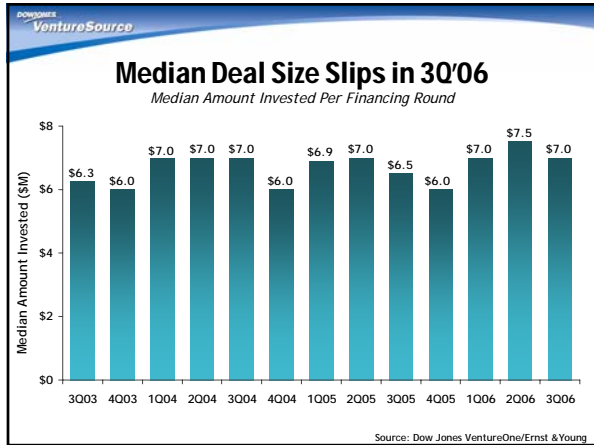
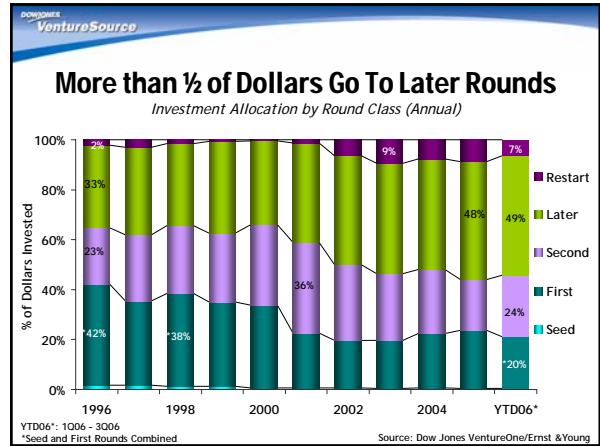
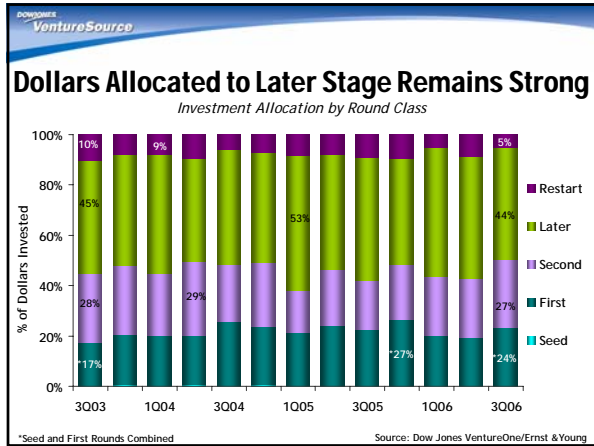
- Venture Capital is a very special and unique category of PE
- It is highly concentrated in a few unique locations and industries
- Cyclicity and uncertainty are key factors
- There are surprising consistencies given these factors
- UC Berkeley, right here, right now – is a unique and great place to study VC!

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2003 J.S. Ernst

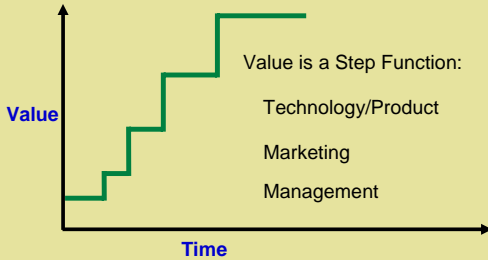
# Financing Design of the Venture Capital Funded Venture



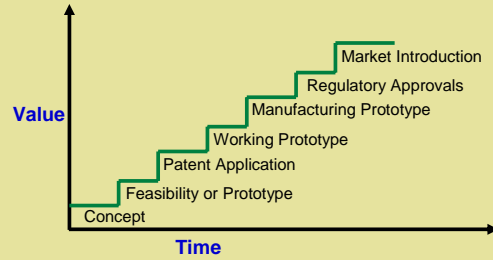




## Structuring the Financing The "Why" of multiple rounds



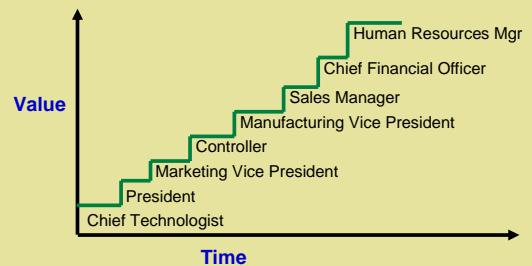
## Adding Technology Value



## Adding Market Value



## Adding Management Value



## Startup Company Valuation Model: The Expanding Value Pie\*

\* [or not confusing ownership with value]

## Company Formation

Founders A, B and C each purchase 1M shares of Common Stock at a purchase price of \$.001 per share.



Person	Shares	% Total	Value
Founder A	1,000,000	33.3%	\$1,000
Founder B	1,000,000	33.3%	\$1,000
Founder C	1,000,000	33.3%	\$1,000
Totals	3,000,000	100%	
Post-Money Valuation			\$3,000

## Hiring a President/CEO Creation of an Option Plan

The company hires a chief executive officer who purchases 1M shares of Common Stock at a purchase price of \$.01 per share. Additionally, in order to attract additional key employees, the Company establishes an employee stock option plan and reserves 1M shares of Common Stock for issuance under this plan. The pre-financing valuation is \$30,000.



Person	Shares	% Total	Value
Founder A	1,000,000	20.0%	\$10,000
Founder B	1,000,000	20.0%	\$10,000
Founder C	1,000,000	20.0%	\$10,000
President	1,000,000	20.0%	\$10,000
Option Plan	1,000,000	20.0%	\$10,000
<b>totals</b>	<b>5,000,000</b>	<b>100%</b>	<b>\$50,000</b>
Post-Money Valuation			\$50,000

## Initial Venture Capital Round

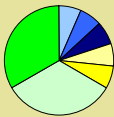
\$5,000,000 venture capital financing at a purchase price of \$1 per share, representing a pre-financing valuation of \$5,000,000 (5M shares with a value of \$1 per share). The new shares are typical venture capital Series A Preferred Stock, with each share of Series A Preferred Stock being convertible into one share of Common Stock.



Person	Shares	% Total	Value
Founder A	1,000,000	10.0%	\$1,000,000
Founder B	1,000,000	10.0%	\$1,000,000
Founder C	1,000,000	10.0%	\$1,000,000
President	1,000,000	10.0%	\$1,000,000
Option Plan	1,000,000	10.0%	\$1,000,000
Series A Inv	5,000,000	50.0%	\$5,000,000
<b>totals</b>	<b>10,000,000</b>	<b>100%</b>	<b>\$10,000,000</b>
Post-Money Valuation			\$10,000,000

## Series B Preferred Financing

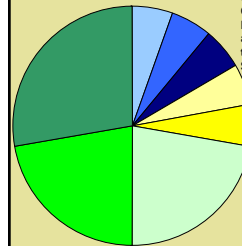
\$10,000,000 Series B Preferred Stock financing at a purchase price of \$2 per share, representing a pre-financing valuation of \$20,000,000 (10M shares with a value of \$2 per share). Like the Series A Preferred Stock, each share of Series B Preferred Stock is convertible into one share of Common Stock.



Person	Shares	% Total	Value
Founder A	1,000,000	6.7%	\$2,000,000
Founder B	1,000,000	6.7%	\$2,000,000
Founder C	1,000,000	6.7%	\$2,000,000
President	1,000,000	6.7%	\$2,000,000
Option Plan	1,000,000	6.7%	\$2,000,000
Series A Inv	5,000,000	33.3%	\$10,000,000
Series B Inv	5,000,000	33.3%	\$10,000,000
<b>totals</b>	<b>15,000,000</b>	<b>100%</b>	<b>\$30,000,000</b>
Post-Money Valuation			\$30,000,000

## Initial Public Offering (IPO)

A total of 5M shares to be sold in the offering, including 3M shares sold by the Company and 1M shares sold by each of the Series A and Series B investors. Shares will be sold at a price of \$10 per share, representing a pre-financing valuation of \$150,000,000 (15M shares with a value of \$10 per share.)



Series A and Series B Preferred Stock automatically converted into Common Stock. All shares sold in offering will be Common Stock. Note that the interest of each founder has decreased from 33.33% at the Company's formation to 5.55% following the IPO. However, the value of the interest of each founder has increased from \$1,000 to \$10,000,000.

Person	Shares	% Total	Value
Founder A	1,000,000	5.6%	\$10,000,000
Founder B	1,000,000	5.6%	\$10,000,000
Founder C	1,000,000	5.6%	\$10,000,000
President	1,000,000	5.6%	\$10,000,000
Option Plan	1,000,000	5.6%	\$10,000,000
Series A Inv	4,000,000	22.2%	\$40,000,000
Series B Inv	4,000,000	22.2%	\$40,000,000
Public IPO	5,000,000	27.8%	\$50,000,000
<b>totals</b>	<b>18,000,000</b>	<b>100%</b>	<b>\$180,000,000</b>
Post-Money Valuation			\$180,000,000

## How to Evaluate a Deal from the Company's Perspective

- Founder's Issues
- Employee's Issues
- Corporate Issues
  - Sufficient Capital
  - Freedom of Operation
- Previous Investor and Creditor Issues
- Etc.

## How to Evaluate a Deal from the Investor's Perspective


- Potential for Adequate Return
- Opportunity for a Home Run?
- Potential 'Fatal Flaws'
- Time Requirements
- Follow-on Investment Requirements
- Portfolio and Fund Compatibility
- Etc.

### Effect of Eleven Factors on Company Valuation

Variables	Lower Valuation	Higher Valuation
<b>Technology</b>		
• Stage of Development	Concept	Product
• Patent Status	None Filed	Issued
• Time to Market	Long	Short
<b>Market</b>		
• Demonstrable Need	No	Yes
• Size & Growth	Small	Large
• Market Penetration	Slow	Rapid
<b>Management Team</b>	Novice	Tested
<b>Financial</b>		
• Profit Margins	Low	High
• Total Capital Required	High	Low
<b>Return on Investment</b>		
• Potential Future Valuation	Low	High
• Time to Liquidity	Long	Short

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Term Sheet



- Corporate Form
  - Typically NOT a pass-through
- Common Stock [sweat]
  - Founders Stock
    - Nominal Issuance
    - Vesting
  - Incentive Stock options
- Preferred Stock [money]
  - Convertible
  - Liquidation Preference
  - Dividends
  - Antidilution Protection
  - Voting Rights
  - Board Representation
- Protective Provisions
  - Sale of Company
  - Additional Issuances of Stock
  - Co-investment Rights
  - Information Rights
  - Demand and Piggy-Back Registration Rights
- Expenses

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

# The Venture Capital Model and The Professional Entrepreneur

### Venture Capital and the Professional Entrepreneur

- Staged financing to match the stages of growth
- How the Professional Entrepreneur manages rapid transitions through the stages
- How the Entrepreneurial Ecosystem supports rapid growth

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Professional Entrepreneur

Meshing with VC model;

- How does the entrepreneur have to behave?
- How does company have to be structured?

TO ACHIEVE HYPERGROWTH!

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Professional Entrepreneur

This means starting new businesses that are designed to grow rapidly

This rapid growth poses special problems and requires special skills

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

## The Professional Entrepreneur

### Motivations:

- To make money
- To build an ego monument
- To put some new technology to use
- To run one's own show
  - To avoid authority
  - To build something new

## The Professional Entrepreneur

### Opportunity:

- Lethargy of the big boys (girls)
- Speed of the process lies in access to *resources*
- Entrepreneurs are not necessarily *strong managers*
- Entrepreneurs are gatherers of resources
- Managers are efficient allocators

## The Professional Entrepreneur

People who start new companies need to know how to attract resources:

- Concept of the company
  - **Business model**
  - **Customer and need**
  - **Why it is an opportunity for the investor**

## The Professional Entrepreneur

People who start new companies need to know how to attract resources:

- Oral presentation skills
- Reference accounts
  - **Why they would buy from this company**
  - **Are they spending money now?**

## The Professional Entrepreneur

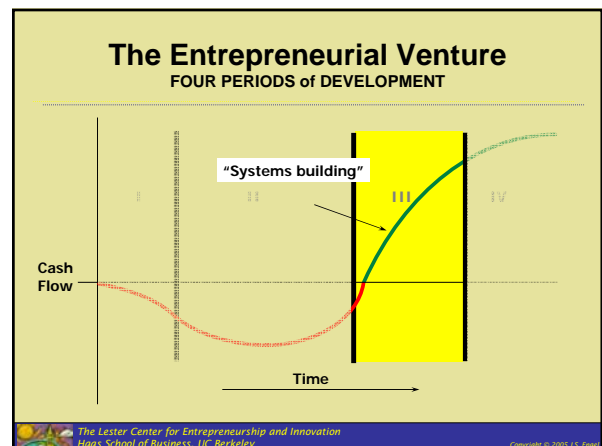
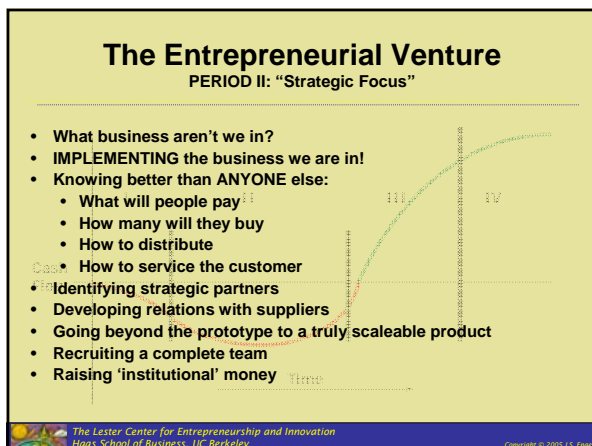
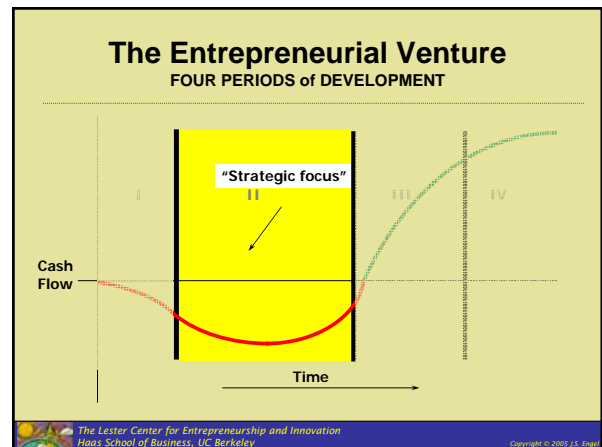
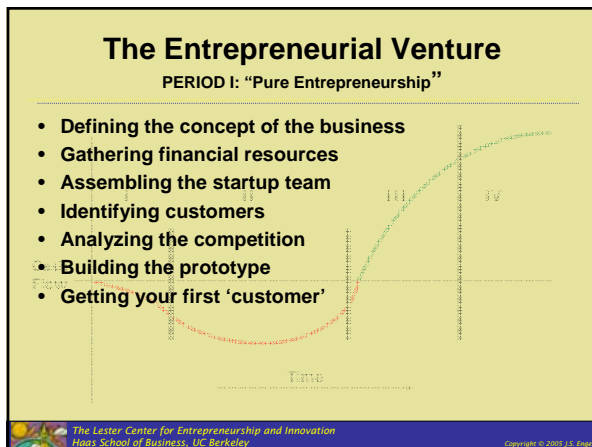
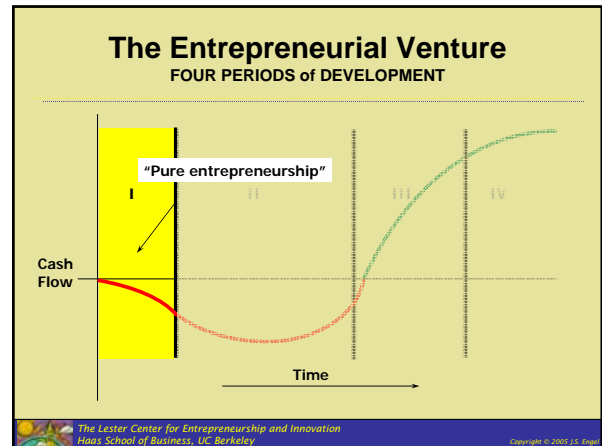
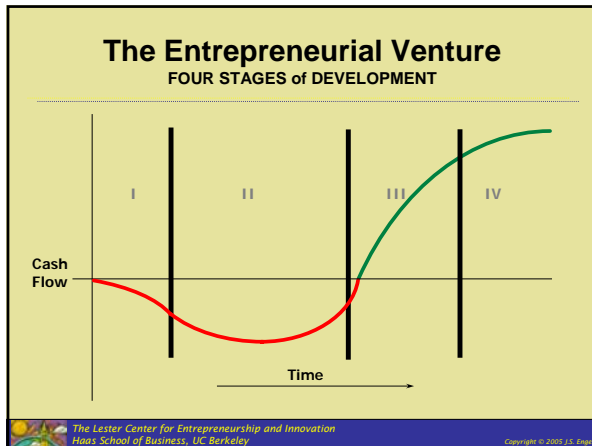
VC's look for:

- Big opportunities and the talents for rapid acceleration
  - **Obvious strategic alliances**
  - **Well-rounded management team (how much time will it take to advise)**

## The Professional Entrepreneur

What makes someone "professional?"

- Separation of what is good for the person from what is good for the company (required if outside investors)
- Recognition of what one is *not* good at
- Ability to change one's role to fit needs
- Serial entrepreneur



### The Entrepreneurial Venture

PERIOD III: "Systems Building"

- Financial controls
- Stable division of labor
- Reporting relationships and authorities
- Developing systems of internal control
- Formalizing the terms of a sale
- Operational systems
  - Production, outsourcing
  - Distribution, sales
  - Service, warranties

The graph plots Cash Flow on the y-axis and Time on the x-axis. A red curve starts below the zero line, crosses it, and then rises steeply. Vertical dashed lines mark the boundaries of four periods: I, II, III, and IV. Period III is highlighted with a yellow background.

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Entrepreneurial Venture

FOUR PERIODS of DEVELOPMENT

The graph plots Cash Flow on the y-axis and Time on the x-axis. A red curve starts negative, crosses zero, and rises. Vertical lines mark the boundaries of four periods: I, II, III, and IV. A yellow box highlights Period IV. A label "Corporate management" points to the end of Period III.

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Entrepreneurial Venture

PERIOD IV: "Corporate Management"

- Hiring "outsiders"
- Going public
- Adding the follow-on product[s]
- Shedding those who can't keep up
- Formalizing the culture
- Rationalizing the strategy

The graph plots Cash Flow on the y-axis and Time on the x-axis. A red curve starts negative, crosses zero, and rises. Vertical lines mark the boundaries of four periods: I, II, III, and IV. Period IV is highlighted with a yellow background.

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Professional Entrepreneur

The graph plots Cash Flow on the y-axis and Time on the x-axis. A red curve starts negative, crosses zero, and rises. Vertical lines mark the boundaries of four periods: I, II, III, and IV. A yellow arrow points from the end of Period IV back to the start of Period I, with the text "Visioning the Future into the Present".

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### The Professional Entrepreneur

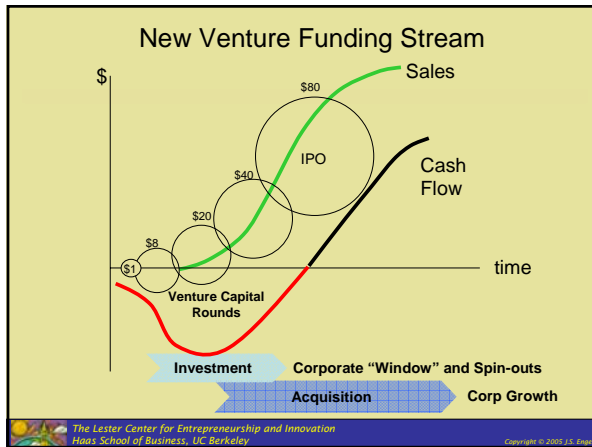
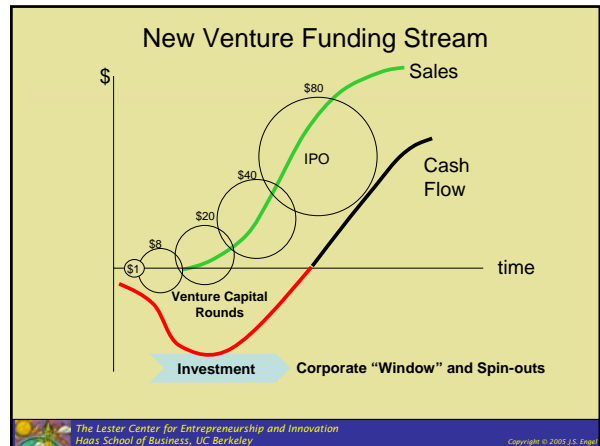
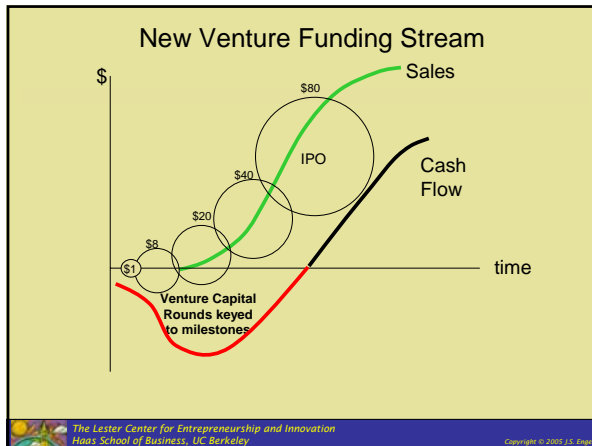
The graph plots Cash Flow on the y-axis and Time on the x-axis. A red curve starts negative, crosses zero, and rises. Vertical lines mark the boundaries of four periods: I, II, III, and IV. A blue arrow labeled "Zone of Collaboration" points from the end of Period III to the start of Period IV. A grey arrow labeled "Zone of Competition" points from the end of Period IV to the right.

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel

### ★ Venture Capital and the Professional Entrepreneur

- Staged financing to match the stages of growth
- How the Professional Entrepreneur manages rapid transitions through the stages
- How the Entrepreneurial Ecosystem supports rapid growth

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Engel



- ### Venture Capital and the Professional Entrepreneur
- Staged financing to match the stages of growth
  - How the Professional Entrepreneur manages rapid transitions through the stages
  - How the Entrepreneurial Ecosystem supports rapid growth
- The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Evans

### The Professional Entrepreneur

The game changes over time. What makes one good at it at one point may actually hurt at another.

Dilemma - entrepreneurial success leads to managerial failure.

Why?

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Evans

### The Professional Entrepreneur

Axiom: Difficulty of managerial work driven by problem complexity

Axiom: Problem complexity driven by complexity of the company

Axiom: Company complexity increases with growth

*The faster the company grows, the more difficult it is to manage.*

The Lester Center for Entrepreneurship and Innovation  
Haas School of Business, UC Berkeley  
Copyright © 2005 J.S. Evans



## The Professional Entrepreneur

The better a person is at being an entrepreneur, the faster the company grows.

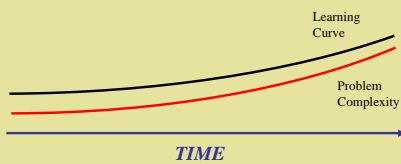
## The Professional Entrepreneur

People start with some level of managerial skill and learn as they go along.

The smarter they are, the faster they learn, and their learning curve is more steeply sloped.

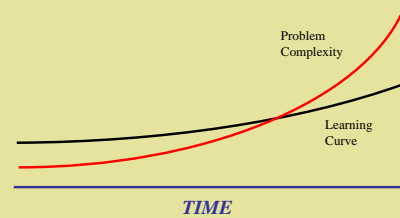
## The Professional Entrepreneur

Slow growing firm



## The Professional Entrepreneur

Fast growing firm



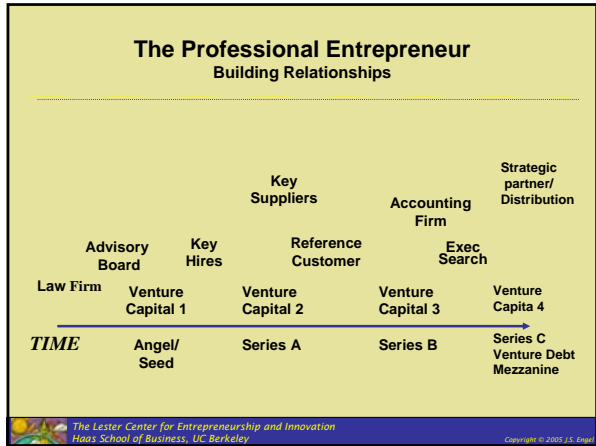
## The Professional Entrepreneur

So:

- Rapid growth often requires an infusion of managerial expertise
- Founders have to lower their influence or exit
- The motivations discussed earlier are impacted differently - so prioritize

## Venture Capital and the Professional Entrepreneur

- Staged financing to match the stages of growth
- How the Professional Entrepreneur manages rapid transitions through the stages
- How the Entrepreneurial Ecosystem supports rapid growth



# Thank You