

The State of Venture Capital Investment in the Biofuels Industry

James J. Greenberger

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What is Venture Capital Investing?

- High risk/high reward investments
- Investments in stock or equity securities
- Unleveraged
- Little liquidity
- Generally made in early stage companies with high potential for growth



What is Cleantech?

Investments in Companies and Technologies That Promise Environmental Benefit

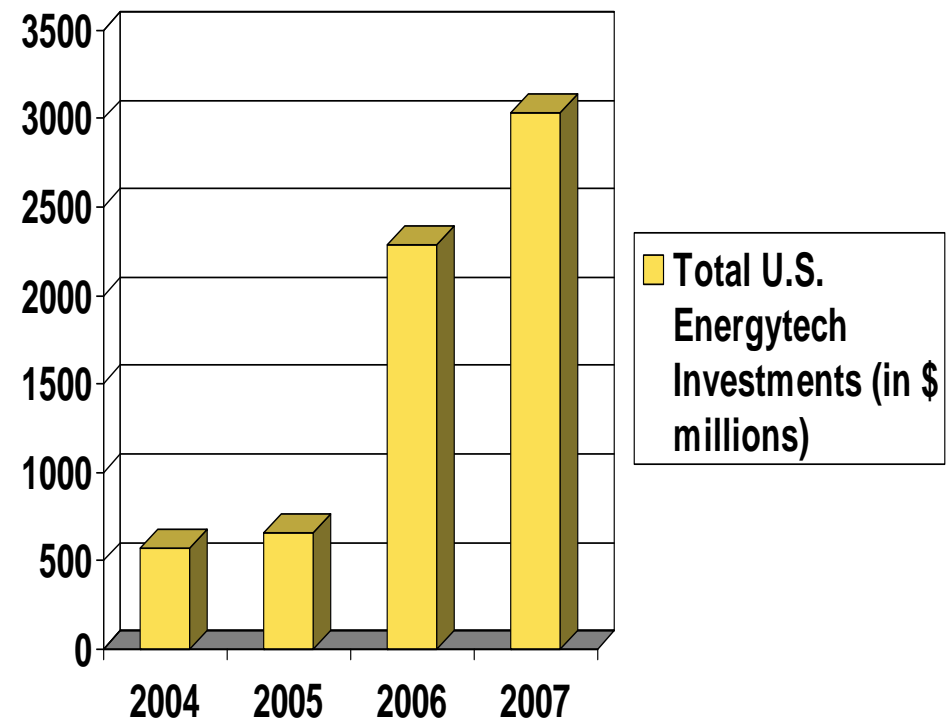
- Solar
- Biofuels
- Clean Transportation
- Wind
- Energy Efficiency
- Carbon Capture
- Smart Grid
- Water

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Cleantech Venture Investments Have Been Growing Rapidly in Recent Years

- In 2004, \$573.2 million was invested in cleantech venture deals in North America
- In 2007, \$3.037 billion was invested in cleantech venture deals in North America



Source: Cleantech
Investment Monitor (Q4

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Cleantech Sector is the of the Best Bad News in 2008 Venture Capital Investment

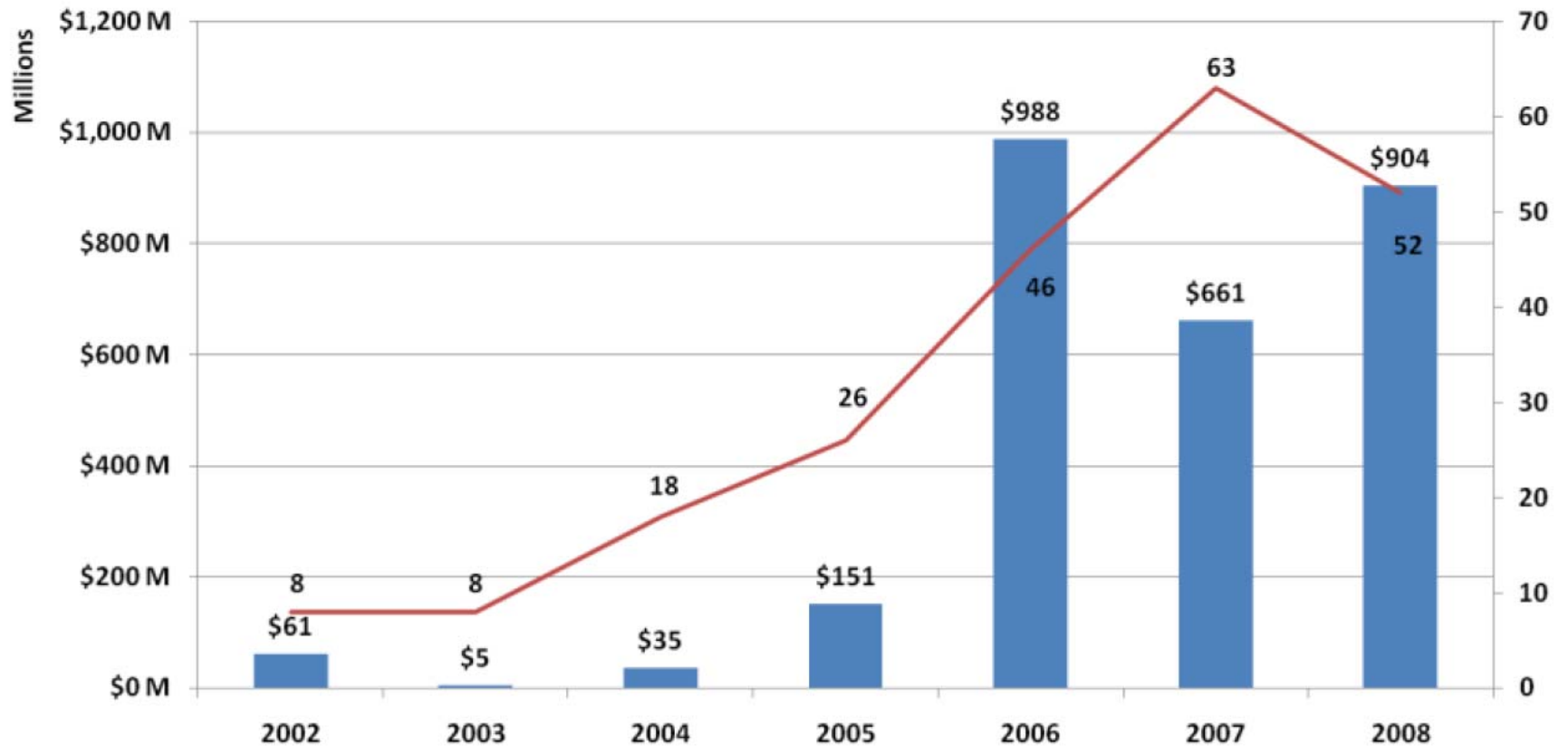
- \$28.3 billion in 3,808 deals in 2008 marks an 8% decline in overall venture capital investing over 2007
- \$5.4 billion in 818 deals in 4Q2008 is lowest since 1Q2005 and a 26% drop from 4Q2007
- *However*, investments in cleantech grow 50% from 2007 to \$8.4 billion in 2008

Source: National Venture Capital Association

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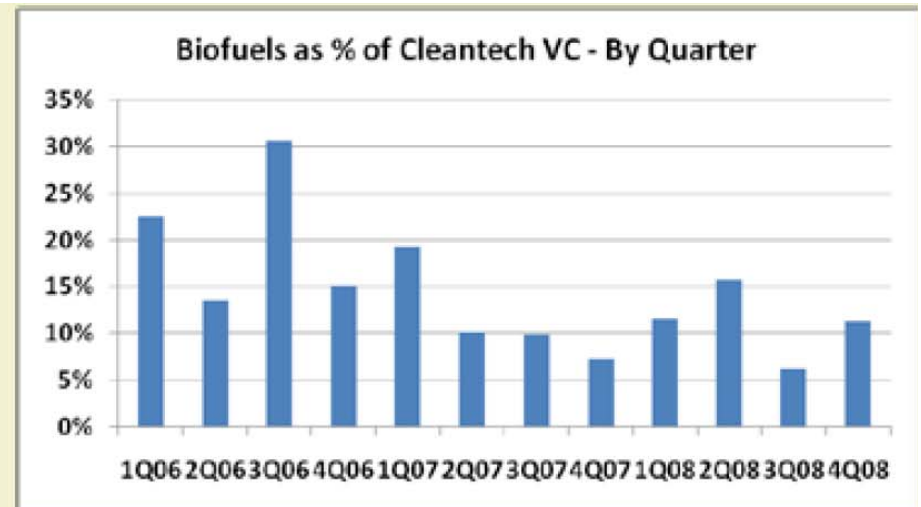
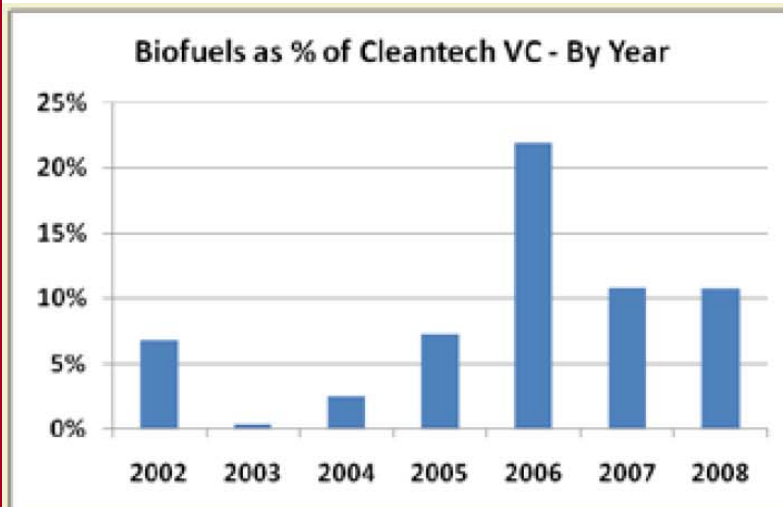
VC Investment in Biofuels by Year



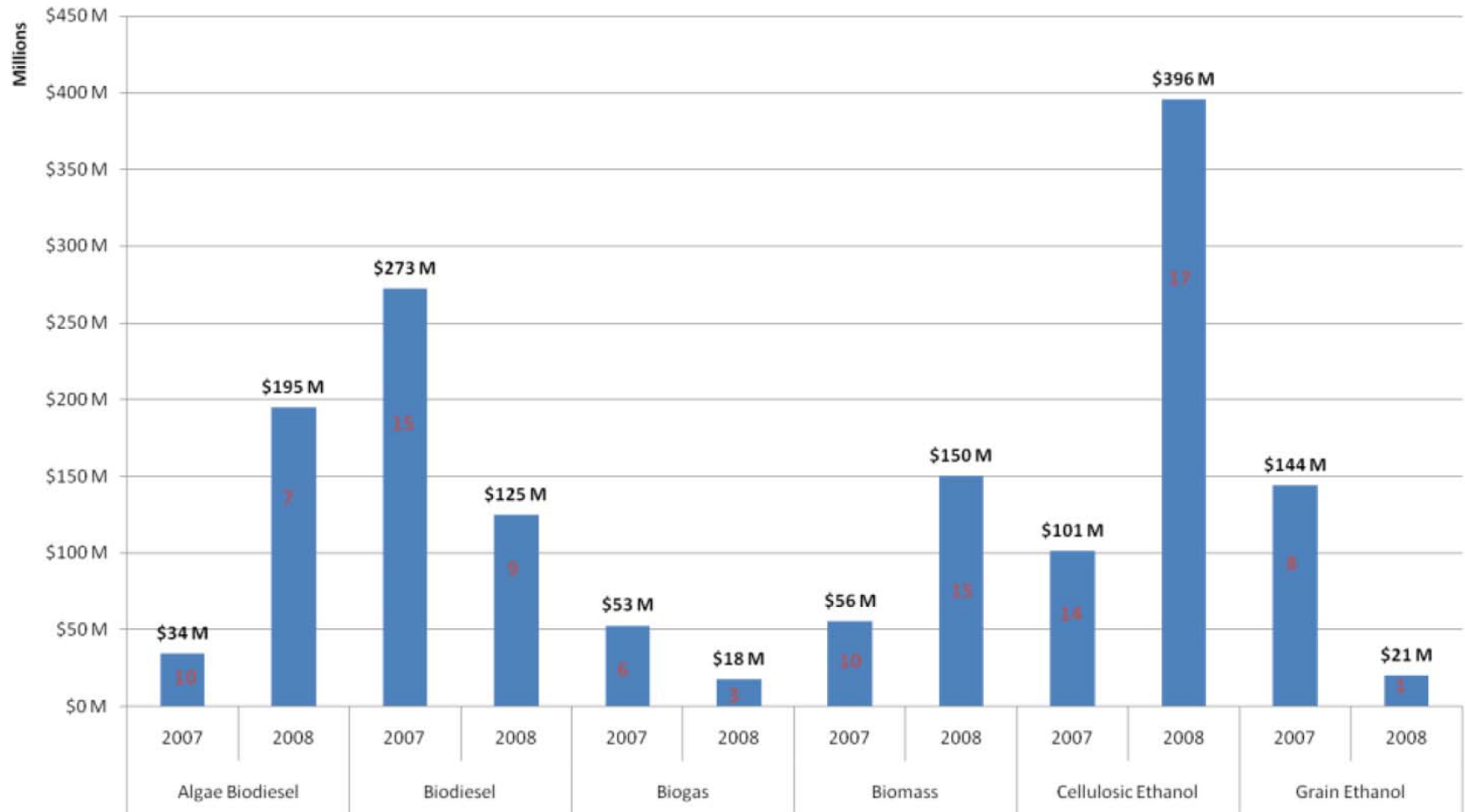
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Biofuels as % of Cleantech VC - By Year



Investment in Biofuels by Technology



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Noteworthy 2008 Cellulosic Ethanol Investments

- \$390 million invested in 8 companies
 - Coskata - \$40 million for syngas to ethanol using *Clostridium* bacteria
 - Cobalt Biofuels - \$25 million for biobutanol process using *Clostridium* bacteria
 - Qteros (formerly SunEthanol) - \$25 million for one step hydrolyzation of cellulose and fermentation of resulting sugars
 - Sriya Innovations - \$15 million for a fractionization process



Noteworthy 2008 Algae Investments

- \$195 million invested in 5 deals
 - Sapphire Energy – alleged “blank check” from Bill Gates and ARCH Ventures to produce “Green Crude”
 - Solix Biofuels - \$40 million to fund a “transparent photobioreactor system” (i.e., it circulates algae within a reactor to allow photosynthesis to occur beyond the top layer)



The Biofuels Challenge: Crossing the “Valley of Death”

- Many first generation biofuels ventures envisioned development of large projects
- Venture investors typically do not invest in massive, late stage rounds
- Project finance providers are allergic to any technology risk
- Avoid the Valley by staying small and developing technology, not projects

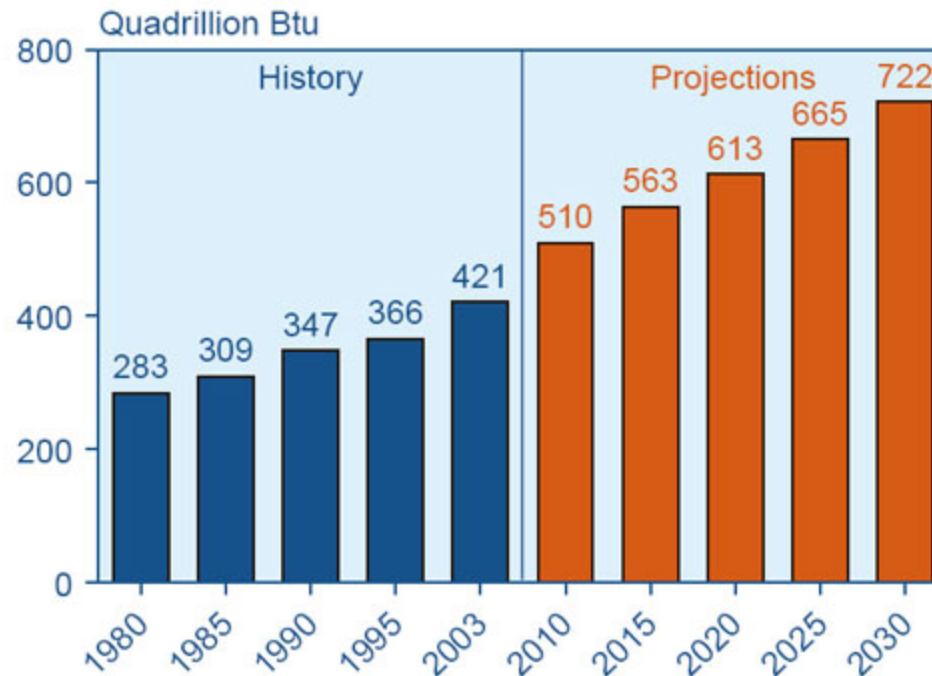


Sunlight at the End of the Valley (...the very far end)

- Demand for Energy Continues to Accelerate
- Potential Supplies of Petroleum Continue to Concentrate in Unstable Parts of the World
- The U.S. Government is Getting Serious about Incenting New Forms of Fuel

Rising Global Demand for Energy

Figure 7. World Marketed Energy Consumption, 1980-2030



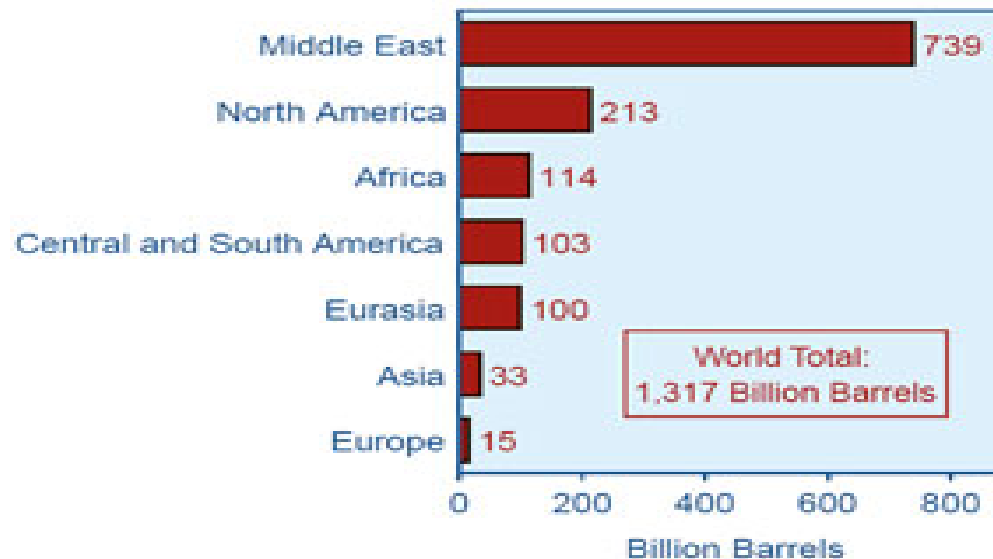
Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 2003* (May-July 2005), web site www.eia.doe.gov/iea/. **Projections:** EIA, *System for the Analysis of Global Energy Markets* (2006).

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Increasing Concentration in Sources of Petroleum Supply

Figure 39. World Proved Oil Reserves by Geographic Region as of January 1, 2007



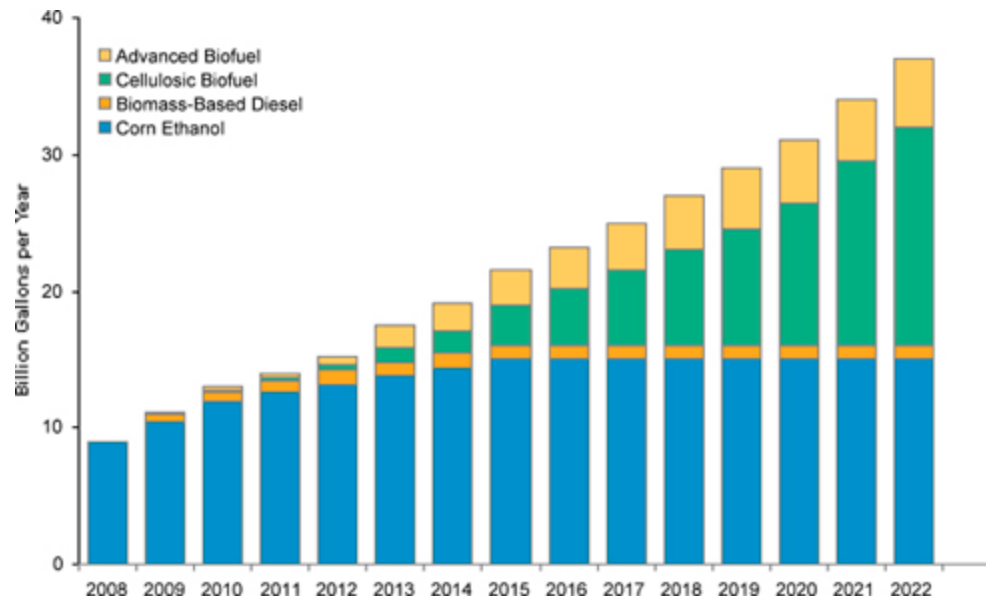
Source: "Worldwide Look at Reserves and Production," *Oil & Gas Journal*, Vol. 104, No. 47 (December 18, 2006), pp. 24-25.

New Government Incentives—Has the Cavalry Arrived?

- Biorefinery Assistance Program – Section 9003 of the 2008 Farm Bill – mandatory funding of \$75 million for FY2009 and \$245 million for FY 2010
 - \$80 million loan guaranty awarded to Range Fuels (cellulosic ethanol) in January 2009
- Biomass Research and Development Initiative - Food, Conservation, and Energy Act (FCEA) of 2008
 - \$25 million in R&D funding grants announced on January 31 by DOE and USDA

New Government Incentives - Energy Independence and Securities Act of 2007

Mandated the annual use of 9 billion gallons of renewable fuel in 2008, growing to 36 billion by 2022, including 16 billion gallons of cellulosic biofuels





Questions?

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Introduction to Venture Capital Financing Terms

Jacob Thride

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What is venture capital?

- Private or institutional investment in early-stage companies
- Types of Venture Capitalists
 - Angel Investors – Wealthy individuals with a tech industry background, in a position to judge high-risk investments. Typical investments are less than \$1 million.
 - Financial Venture Capitalists – Investment firms which are usually organized as venture capital funds, with limits on size, lifetime and exit strategies. Fund sizes are typically \$25 million and up.
 - Strategic Venture Capitalists – These are typically small divisions of large technology companies with corporate funding for strategic investments.



Why use VCs?

- Money
- Extensive early stage expertise
- Industry and operational experience
- Contacts in the industry
- Develop a world class team



Their goals and concerns

- Maximize the return of investment in the shortest time possible
- Asses the level of risk associated with the investment
- Liquidity of investment and exit strategies
- Protection against dilution in future rounds
- Control over management and key decisions



Your goals and concerns

- Adequate financing
- Short term vs. long term strategy
- Loss of management controls
- Dilution of personal stake in the company
- Repurchase of your personal stock in the event of employment termination, retirement or resignation
- Security interests being taken in key assets of the company

What is the Term Sheet?

- Non-binding financing agreement negotiated between the VC and the start-up company which sets forth the terms of the investment
- Usually drafted by the VC after completion of the due diligence process
- Typically finalized before an attorney for the start-up company has reviewed it
- Uphill battle to change terms after it has been signed

The most important negotiated provisions in a Term Sheet?

- Dividends: percentage of return; cumulative vs. non-cumulative; preference
- Liquidation Preference: multiple on investment; definition of liquidation event
- Redemption: timing
- Anti-Dilution: full-ratchet vs. weighted-average
- Board Composition: Who has control?
- Voting and Protective Provisions
- Registration Rights: demand rights and piggyback rights
- Drag Along and Tag Along Rights
- Right of First Refusal



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