



## Innovation at Risk– the Impact of the Capital Markets Crisis on the Next Generation of American Emerging Growth Companies

REFF West

September 30, 2009

*Keynote Remarks by Pascal N. Levensohn*

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We are living through a period of accelerating, unprecedented global change, and one of the permanent features of our new business operating environment is the fact that innovation has gone global. Today, while America continues to lead in the rapidly growing and broad movement that is popularly referred to as Cleantech, we must recognize that the globalization of innovation, particularly over the past ten years, has redefined the nature of international competition across all fields of technology. This evolution is shaping new national innovation agendas in emerging leadership centers from Helsinki to Santiago, from Dubai to Singapore, inspired by continuing examples of extraordinary economic growth despite the global financial crisis in countries such as China and India.

## INNOVATION

Thrives In an Environment Which:

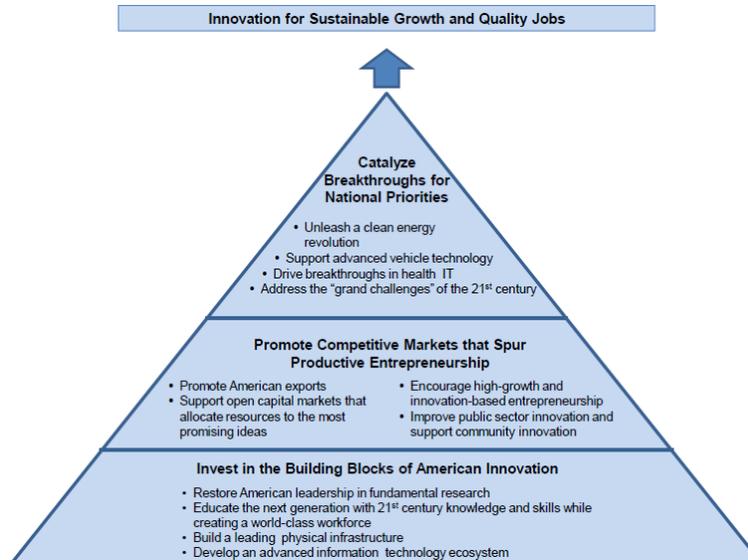
Encourages Collaboration and Diversity

Is Defined by Resource Constraints and a Sense of Urgency

Promises Ample Rewards for Success

Innovation thrives in an environment that encourages collaboration and diversity, that is defined by defined resource constraints and a sense of urgency, and that promises ample rewards for success. Innovation doesn't stop due to economic troubles—but it does move away from environments that do not encourage innovation—let's not forget that the combination of entrepreneurial talent and risk capital, the lifeblood of innovation, is very mobile.

In this context, America is at risk of discouraging the next generation of entrepreneurs and risk capital from taking root in the U.S. This trend is not only already well underway, its long-term causes are intimately linked with our historic success and leadership in innovation.



Source: White House Office of Science and Technology Policy, September 2009

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Let's start with some good news. On September 21 President Obama, through the National Economic Council and Office of Science and Technology Policy, announced "A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs". Three key elements of this strategy are; (1.) Invest in the Building Blocks of American Innovation; (2.) Promote Competitive Markets that Spur Productive Entrepreneurship; and (3.) Catalyze Breakthroughs for National Priorities. For the cleantech industry, which has been the poster child for innovation for the new administration, there is further good news: "There are certain sectors of exceptional national importance where the market is unlikely to produce the desirable outcomes on its own. These include developing alternative energy sources, reducing costs and improving lives with health IT, and manufacturing advanced vehicles. In these industries where markets may fail on their own, government can be part of the solution."

In reading this inspirational message, I have two major concerns. First, I am concerned that many issues around America's innovation strategy remain to be resolved, i.e. funding of innovation, intellectual property policy, and the stewardship of the overall innovation process.

Second and more important, America is late to the party in making this announcement. Unfortunately, current American policies on matters such as issuing H-1 B Visas to highly skilled foreign nationals, and the unintended consequences of securities regulation impacting small companies, continue to work in direct opposition to the job creation and long-term economic growth objectives of the Obama administration.

“ *The Federal government also must be careful not to create policy and regulation that inhibits innovation or results in inefficiencies or less security.* ”

Source: “Cyberspace Policy Review”, White House, May 2009

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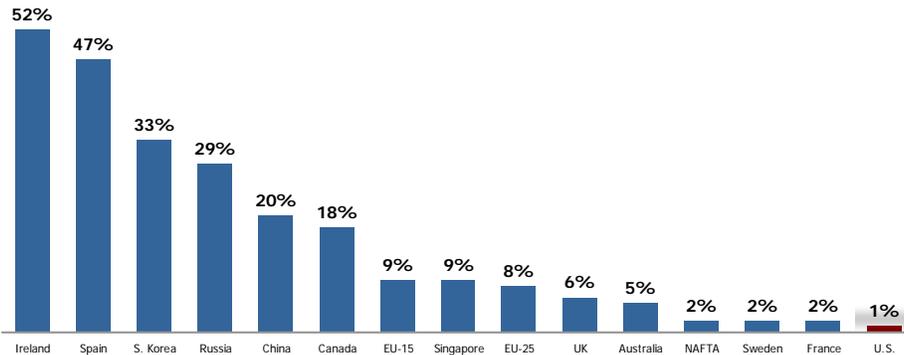
In the same spirit as the Innovation Policy announcement, on May 29th, the White House issued the much-anticipated national Cyberspace Policy Review. While it marked the beginning of a framework to discuss effective responses to increasing threats to our nation’s critical infrastructure, we are still waiting for leadership to emerge in this area to take the report to the next level, the level of action.

My chief concern with both of these ambitious agendas, whose goals I fully support, is that they must be accompanied by a sense of urgency in their actual implementation. America needs to recognize that our historic leadership in innovation is not only at risk, it has been eroding for many years. We must get engaged in the detailed process required to see them become reality in a timely manner. The Cyberspace Policy Review acknowledges that government policies and regulations, while well intended, also can generate unintended negative consequences that stifle innovation and may in some cases make things actually less secure. For example, we need only consider the Federal Acquisition Rules, or FAR, which make it exceedingly difficult to acquire leading technology solutions from emerging companies. The good news is that new initiatives are in process to address these problems in cleantech and in cybersecurity in particular, but we are already late to this party.

## Long-Term View Shows U.S. as 15<sup>th</sup> in Government R&D Investment



### Investments in R&D by Government as a Share of GDP Percent Change 1999-2006



Source: UNESCO, Institute of Statistics, 1999-2006 data  
The Atlantic Century, European-American Business Council, ITIF, February 2009

Looking forward, it increasingly appears that the greatest challenge facing the long-term sustainability and health of the cleantech industry in America—particularly in areas such as renewable energy— will be the creation of a critical mass of sustainable, scalable domestic market demand for innovative cleantech solutions, not the stimulation of the core research itself. In this respect, it is critical to acknowledge that we must approach solutions in a holistic and comprehensive manner—this means that we need all of the key players—entrepreneurs, government, academia, industry, and venture capitalists, sitting at the same innovation table. Unfortunately, America is also very late to the game in understanding the interdependence of the five key players in this ecosystem—and the principal loser in this scenario is the most important player—the entrepreneur.

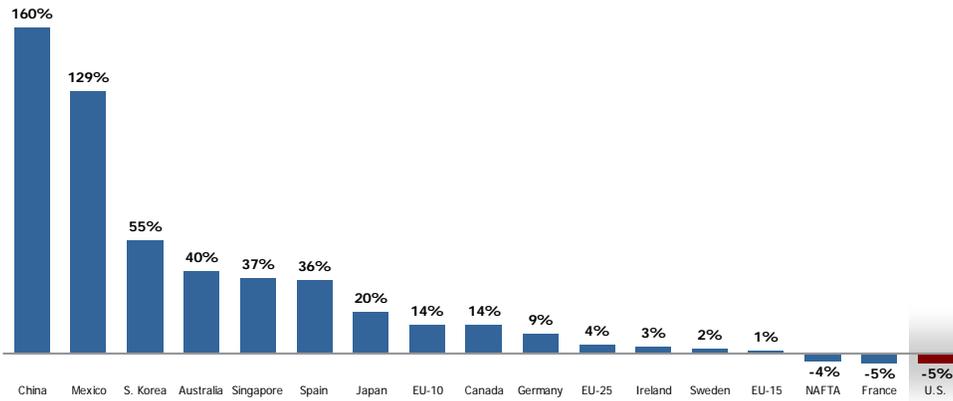
In the new competitive environment for innovation, other countries have ramped up their R&D investment while the U.S. has stagnated. Looking at the growth rates in the U.S. position since 1999 compared to many other countries, we are ranked 15<sup>th</sup> and compounding at 1%, behind France since 1999.

## U.S. Has Fallen Behind in Corporate R&D Investment



### Investments in R&D by Business as a Share of Gross Domestic Product (GDP)

Percent Change 1999-2006



Source: UNESCO, Institute of Statistics, 1999-2006 Data  
The Atlantic Century, European-American Business Council, ITIF, February 2009

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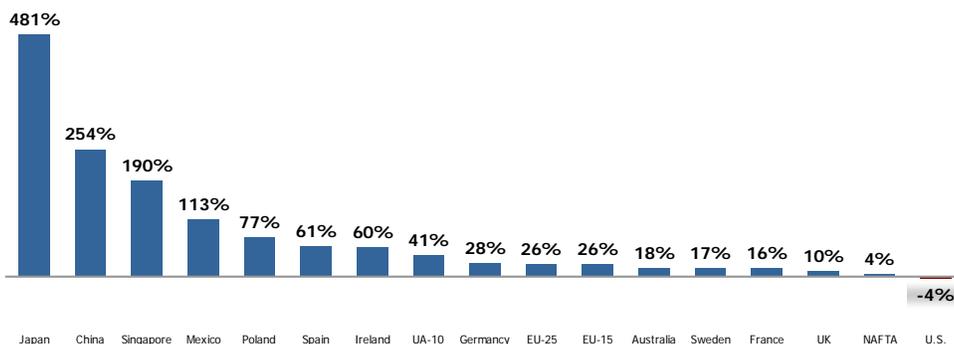
Turning to the corporate sector, large U.S. companies have also reduced their R&D spending, and when we look at these trends compared to other countries, we see the most important part of the picture—the U.S. is at the bottom of the pack when we look at the compound annual rate of change in R&D investments by business from 1999 to 2006—with the U.S. business sector compounding at **NEGATIVE 5%**, again keeping pace with France, while China, Mexico, South Korea, Australia, Singapore, and many others are clearly increasing the rate at which they are investing in the future. I believe that economic historians will mark 1999 as a turning point in America's secular decline in technology investing because of the technology bubble's impact in accelerating the rise of China and India as technology centers of excellence in manufacturing and software, respectively.

## Long-Term Trend Shows U.S. Declining to 17<sup>th</sup> in Scientific Publications



### Scientific and Technical Publications per Million People and the Relative Prominence of Those Publications

Percent Change in Number of Publications, 1993-2003



Source: UNESCO, Institute of Statistics, 1999-2006 data  
The Atlantic Century, European-American Business Council, ITIF, February 2009

Another troubling long-term trend shows the U.S. declining to 17<sup>th</sup> in Scientific Publications. Again, notice the massive increase from countries such as Japan, China, and Singapore and that the U.S. is the only country in long-term decline. In venture capital we call this a secular loss in market share.

Data from the Information Technology and Innovation Foundation (ITIF) also reveals that the U.S. is 17<sup>th</sup> in R&D tax credits.

**Global Financial Crisis Exposes Structural Flaws in U.S. Capital Markets from Unintended Regulatory Consequences**

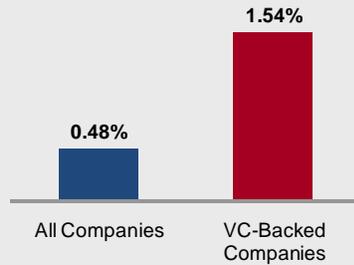
- Traditional Risk Capital Sources Drained from Public and Private Equity Market
- Venture Capital Community Experiencing Systemic Liquidity Crisis
- U.S. must rely on a new cycle of job creation to drive sustainable growth in our economy. While entrepreneurs can be successful without VC's, venture capital is the most efficient job growth creation engine in this country
- Serious Negative Implications for America's Economic Growth for the Security of Critical Infrastructure and for National Security

This hard truth, that we have an innovation crisis in America, and that it has been percolating for decades, is becoming more and more evident across many measures—our nation's well recognized weakness in cybersecurity is one of the most obvious signs of this reality. Expert observers from Judy Estrin to Norm Augustine have written about this with great concern over the past three years—“eating our seed corn”.

One of the most significant impacts of the global financial crisis on innovation has been to drain traditional sources of risk capital from the market at the worst possible time, and the negative impact of this pervasive risk aversion is particularly acute in the venture capital community.

## VC-Backed Companies Create Jobs Faster

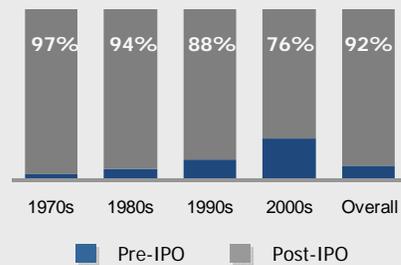
Employment CAGR (2006 - 2008)



**12.1M Jobs Created**

## 92% of Job Growth Occurs Post-IPO

VC-Backed Company Employment Growth



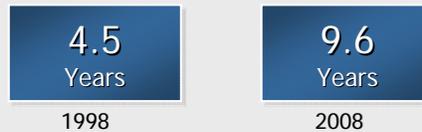
Sources: Left: Global Insight, 2009  
Right: NVCA, Global Insight and Survey of Top 136 VC-Based Companies That Went Public 1970-2005

Why does venture capital matter? Because venture capital is the most efficient source of new job creation in the U.S. To be clear, the reason that other countries have ramped up their R&D spending is to emulate, duplicate, and overtake the Silicon Valley ecosystem.

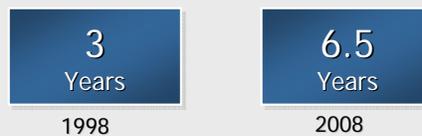
A key point about VC which is not generally well known is that, going back to the 1970s, on average, 92% of the job growth generated by VC-backed companies occurs AFTER their initial public offering.

### Longer Time to IPO and M&A

#### Median Age at IPO



#### Median Age at M&A



Source: Thomson Reuters, Dow Jones VentureSource

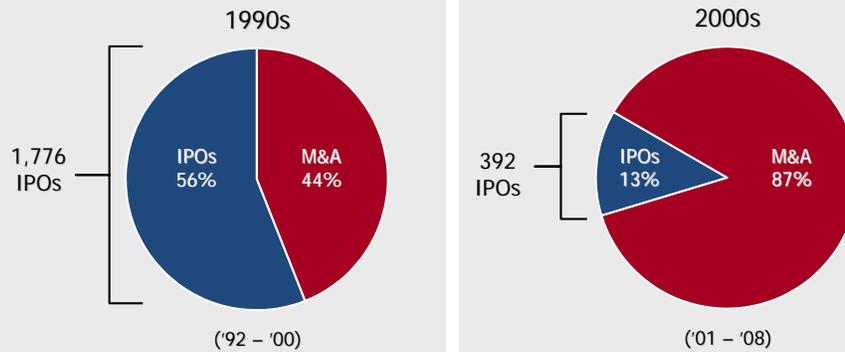
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And there has been a very material extension over the last ten years in the time that it takes for a VC-backed company to go public—in 1998, PRE BUBBLE, the median age of a VC-backed company at IPO was 4.5 years. Today it is over 9.6 years. For a company to be acquired, in 1998 the median age was 3 years, whereas in 2008 it was 6.5 years.

Why does this matter? First, because the entire venture capital industry is structured on 10-year partnerships. Second, institutional investors have reserved their commitments to fund new ventures on a 4-6 year average time to receiving liquidity. And third, when companies are acquired instead of going public, jobs are typically lost, they are not created.

## Dramatic Decline in IPOs in the 2000's

Number of Venture-Backed IPOs vs. M&A Exits



Lack of IPOs Is Harmful to Job Creation and Economy

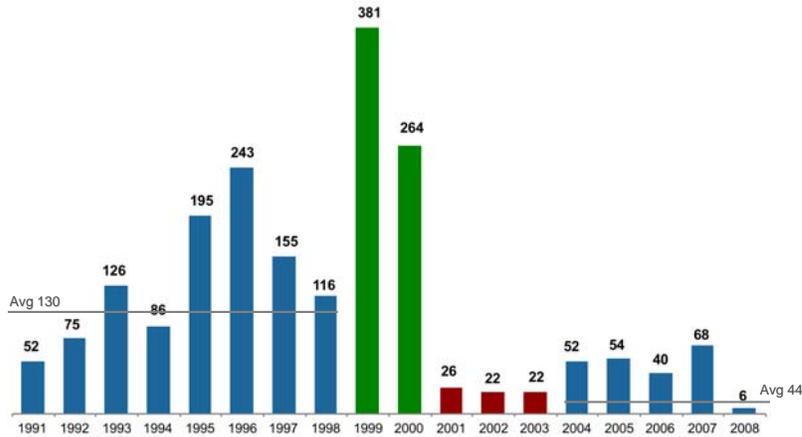
Source Thomson Reuters/NVCA

To drive this point home, we need only look at the dramatic shift in mix between IPO's and M&A exits in the 1990's and the first decade of the 21st century—the lack of IPOs is harmful to job creation and to the American economy. Compounding the IPO drought is the fact that the entire NASDAQ market has shrunk—since December 2000 the NASDAQ has contracted by 38% to approximately 1,786 companies. So not only are fewer companies going public, more companies have been forced to merge or have gone out of business, which means there are fewer public companies to acquire other emerging companies. This is a very unhealthy situation, but it has been allowed to continue for years.

## U.S. IPO Activity Since 2000 Lower Than Pre-Bubble Levels



### U.S. Tech IPO Activity – Number of Transactions<sup>(1)</sup>

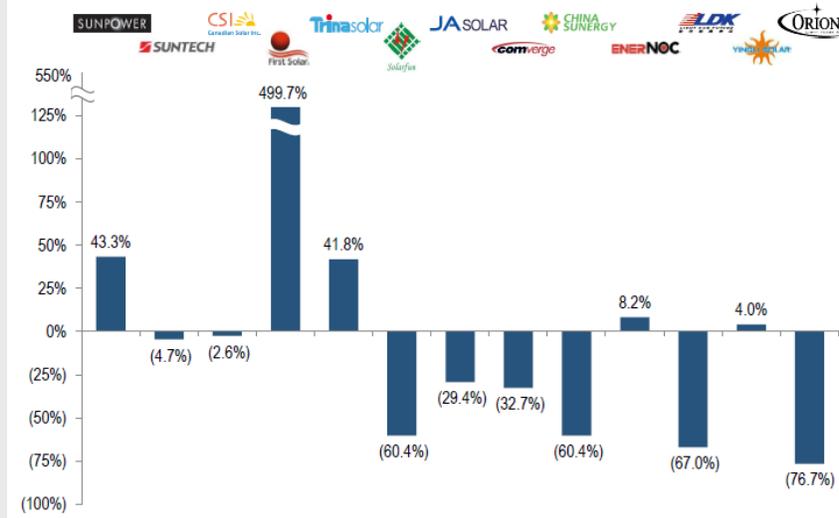


(1)Source: Thomson Financial and Jefferies Broadview IPO Database. Data excludes Telecommunications Providers and IP Services transactions, and transactions where <\$15MM in capital was raised.

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How is this a systemic problem as opposed to a cyclical market swing? If you look at the average annual number of tech IPOs before the bubble, it was 130 companies per year. Since 2001 we have averaged 44 per year in the U.S. If I were to show you the statistics for Europe over the same period, they are different, and, in fact, IPO's in Europe over the comparable period have increased. This suggests that we have a systemic problem in the U.S., not a global capital markets problem for emerging equities. Further, in order to restore a normal capital replenishment cycle to fund innovation, we need to get back to a capital markets environment that supports 130 tech IPOs per year (we need at least 360 per year just to tread water in overall listings). While they are positive indicators, recent technology IPOs are drops of water in the desert, and they are not relevant to the largest group of companies that cannot go public in today's market— those that need to access \$50mm or less in equity capital.

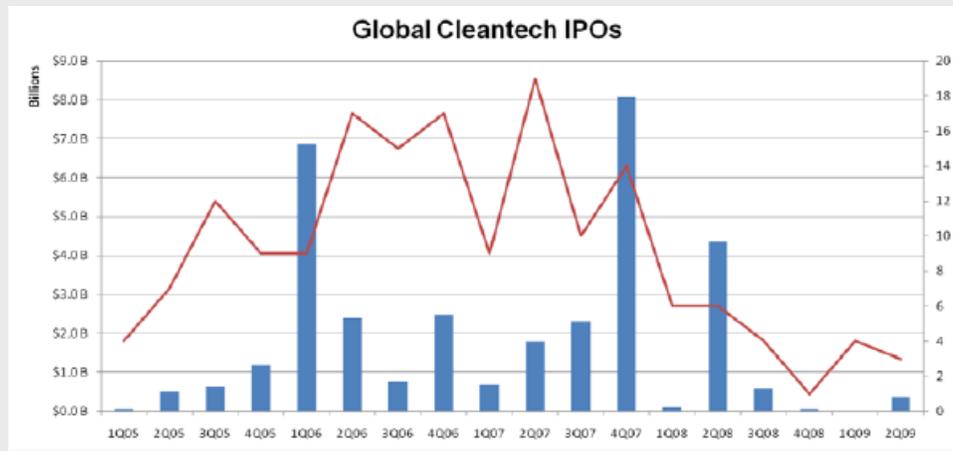
## Public Investors' Ability to Make Money in the Cleantech Sector has been Limited



Jefferies

While total Tech IPOs have been very few and far between, the problem for Cleantech is that public stock performance has been erratic.

## Globally Cleantech IPOs Remain Scarce



Source: Cleantech Group, LLC, 2009

Cleantech IPO activity remained at low levels in 2Q09, with three IPOs totaling \$361 million. Compared to 1Q09, which saw four IPOs totaling \$8 million, 2Q09 reflects a moderate rebound in activity, although remaining well below the levels seen over the past three years.

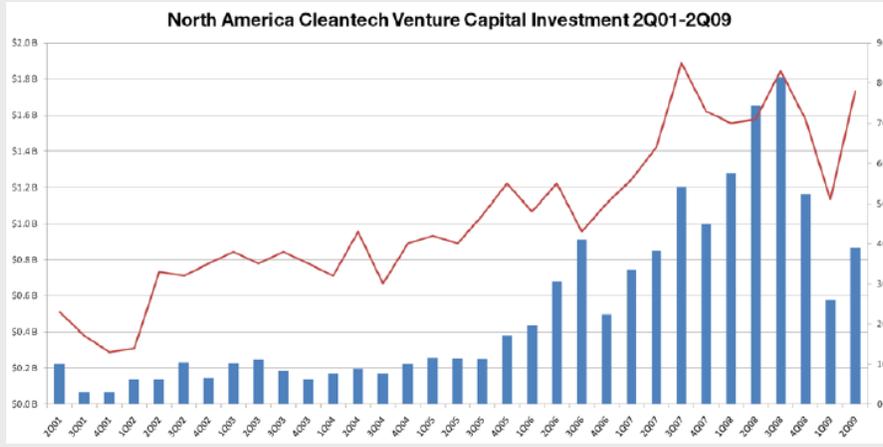
Globally, Cleantech IPOs have been significantly depressed both due to global financial market issues but also they have been negatively impacted by sector underperformance and variability in results.

## North American Cleantech M&A – 2005 to 2Q 2009



In North America, the merger and acquisition statistics also look challenging, as exit value levels will continue to be constrained by the knowledge that going public is an alternative for only the very few. Average exit values of \$45 million are hardly going to deliver the kind of returns that investors are expecting from continuing multi-billion capital investment flows into the cleantech sector.

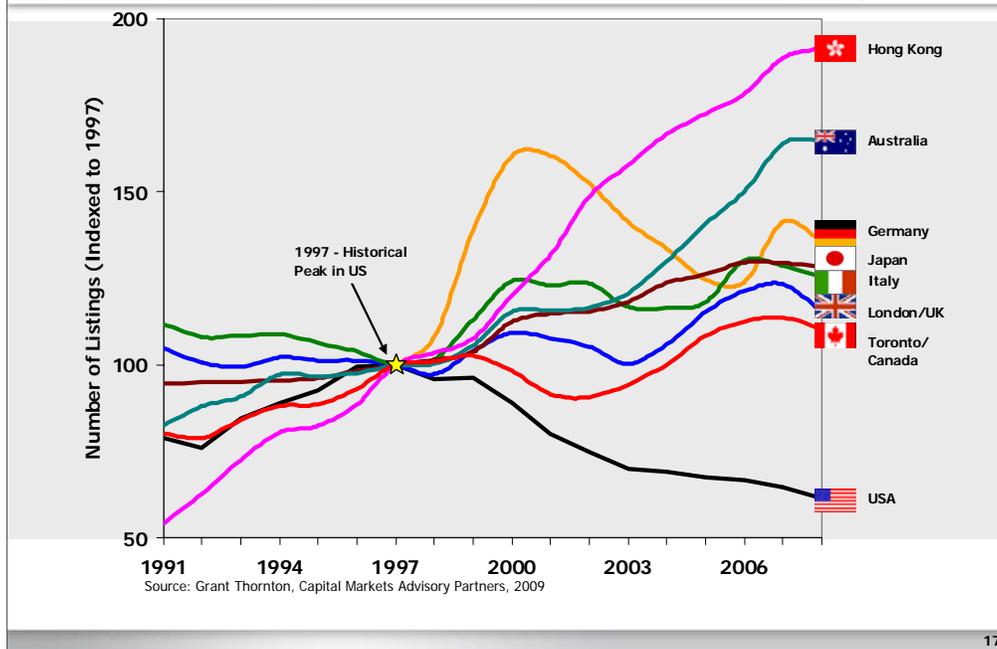
## Despite Weaker Exit Environment, VC Funding Remains Robust



Source: Cleantech Group, LLC, 2009

As you can see, Cleantech has continued to receive strong inflows of capital despite the general risk aversion that grips the financial markets today.

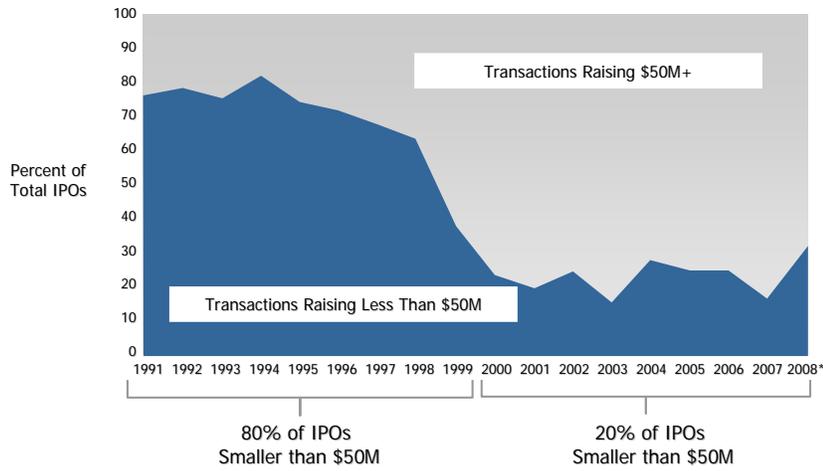
## Long-Term Decline in U.S. Capital Markets Leadership-- 1997 Marked Pivotal Turning Point for U.S. Equity Listings



It is easy to be enthusiastic about recent announced underwriting transactions and early stock price increases, but we cannot forget that the public market performance that matters for both venture capital investors and the entrepreneurs is the long-term stock price and the market liquidity available for selling shareholders beginning six months after the IPO itself. And this is where we have real systemic problems.

Most alarming from the U.S. capital markets perspective is the fact that the slide in America's share of public companies actually peaked in 1997—well before the technology bubble, and the U.S. has been in a steep slide ever since—ironically, at the same time that every other major global equity market has grown. The negative implications of this data are fully examined in an explosive new study by Grant Thornton, written by David Weild and Edward Kim of Capital Markets Advisory Partners, that is going to be released in the next couple of weeks.

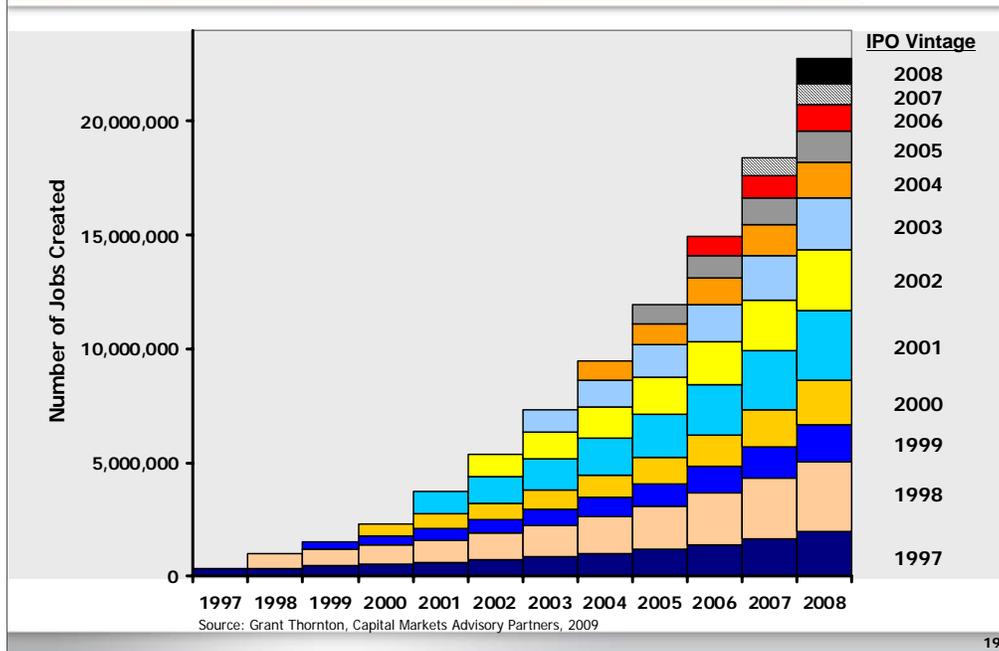
## The Death of the Under – \$50M IPO



\*Data Includes Corporate IPOs as of 10/31/08. (Excludes Funds, REITs, SPACs and LPs).  
Source: Dealogic, Grant Thornton, Capital Markets Advisory Partners

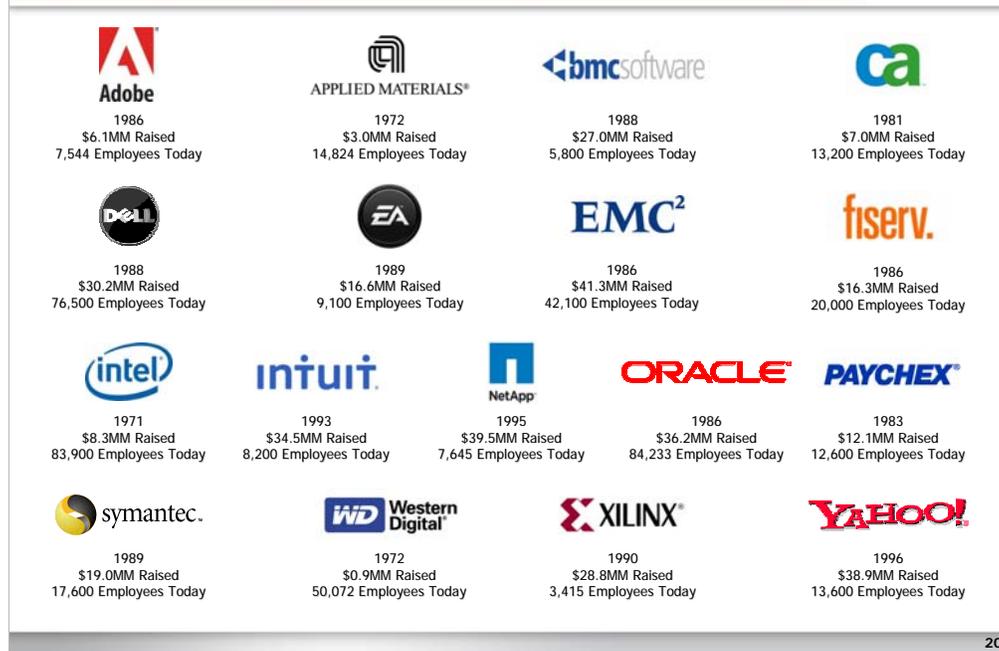
The small growth company is widely recognized as creating new jobs, and, in America, over the past eleven years we've witnessed the capital markets death of one of the great job-creation mechanisms in the United States, the sub-\$50 million IPO. To be clear, this isn't just a venture capital problem—this is a major problem for the American entrepreneur—since 1991, 47% of all U.S. IPOs were neither VC or PE backed.

## 22 Million U.S. Jobs Lost From Decline in U.S. IPO's Since 1997



Among the Grant Thornton study's key conclusions is that the loss of new public company listings by the United States since 1997, when correlated with the historic post-IPO job creation data developed by the National Venture Capital Association, has cost the United States over 22 million jobs.

17 Venture-Backed Companies Raised \$367M;  
Provide 470K U.S. Jobs Today



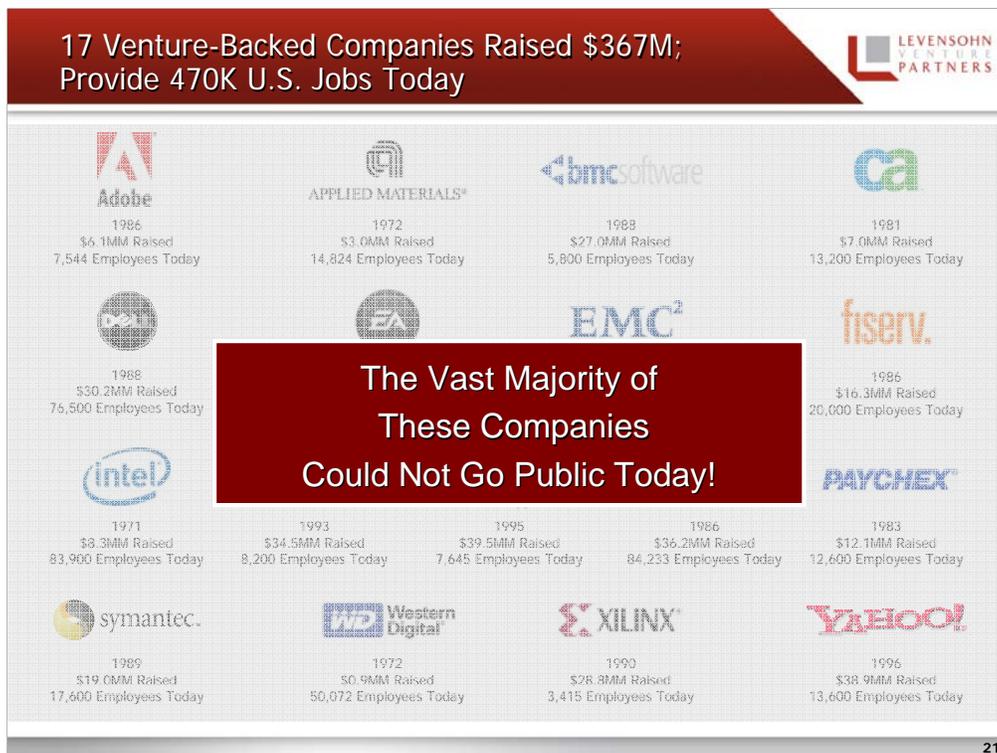
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Why should you care about these lost jobs and about the sub-\$50 million IPO? Because the 17 companies whose logos you see are all venture-backed companies that went public raising less than \$50 million at various times between 1971 and 1996. These companies raised just \$367 million in the public markets, and they account for 470,000 U.S. jobs today. Adjusted for inflation and measured in 2009 dollars, the \$367mm in total dollars raised by this group equals \$670mm, and only 2 of these 17 companies' IPOs (EMC \$80mm and Oracle\$70mm) exceed \$55mm in 2009 dollars. Today these companies are household names, from Intel, to Yahoo!, to Dell, Adobe, and Symantec, from EA Sports to EMC. Let's not forget that these companies were also largely unknown small cap growth companies when they first went public and that this impacts the entrepreneur most of all—how many companies that represent the next generation of household names will be still-born or acquired into obscurity because they cannot access the public capital markets today?

Some of them may be in the room with us right now.

The IPO drought is a symptom of a deeper systemic liquidity crisis for small capitalization companies. Predictions that U.S. IPOs are about to come back in a meaningful manner are wishful thinking. The current threshold criteria for liquidity as defined by the dominant underwriters in the U.S. accommodate only a small minority of the viable private companies seeking public growth capital. The severity of this untenable situation is compounded by a lack of awareness among our nation's policymakers that all of these factors are interrelated.

Who is to blame? The answer is a systemic one, and that means it is insufficient to just sit back and denounce Sarbanes Oxley. The culprit is the combination of unintended negative consequences from a whole body of securities regulations that triggered tectonic shifts in the landscape of the investment banking business. Certain technical trading rules that were enacted in 1997 to facilitate the rise of electronic trading networks have had the unintended effect of massively increasing volatility among small capitalization companies and reducing their liquidity.



Other market structure changes which have been harmful to emerging growth companies, though they were not intended to cause any harm, include decimization, which lowered trading revenue to market makers and research analysts; the investment banking consent decree, which prohibits research analysts at investment banks from getting paid by securities underwriting; the consolidation of investment bankers and institutional investors, which drove underwriters to focus only on very large clients; and the elimination of syndication, impacting underwriting standards and economics.

Today, if we are lucky enough to actually be in the **aftermath** of the global financial crisis, the risk capital available for market makers and small cap company underwriters to support America's innovative entrepreneurs has diminished significantly.

We must take specific actions to reverse the unintended consequences of a series of securities regulations bolted onto a framework that has been eclipsed by electronic trading and increasingly left behind in a fundamentally transformed global competitive environment.

Achieving these goals in the public equity markets does not require the relaxation of Sarbanes Oxley or of other recently implemented measures of corporate governance oversight and director accountability.

I have been working with David Weild, former Executive Vice President of the NASDAQ, Mike Halloran, former deputy chief of staff and general counsel at the SEC, Steve Bochner, CEO of Wilson Sonsini, and other capital markets experts to come up with specific recommendations for regulatory reform that are achievable and that do not cost the American taxpayer.

These specific recommendations for regulatory reform are achievable and do not cost the American taxpayer anything.

In addition to other recommendations that we are currently formulating and will be releasing to the public in the next few weeks, we recommend securities regulations changes on an 'Opt-In', **voluntary** basis for equity issuers with market capitalizations **below** a defined limit. The changed rules would-

- Eliminate electronic execution that bypasses market makers, restoring a positive market spread so that liquidity providers are paid to risk their capital

- Establish minimum commission rates to support the cost of providing research for fledgling public companies and low volume stocks

- Allow small cap research analysts must be permitted to receive compensation from underwriting fees.

Modify securities regulations to support the needs of companies raising less than \$50 million in public growth capital

- On an 'Opt-In', voluntary basis for equity issuers with market capitalizations below a defined limit:
  - Eliminate electronic execution that bypasses market makers, restoring a positive market spread so that liquidity providers are paid to risk their capital
  - Establish minimum commission rates to support the cost of providing research for fledgling public companies and low volume stocks
  - Allow small cap research analysts to be compensated from underwriting fees

America's traditional leadership in entrepreneurial growth and innovation is now visibly faltering. This is the result of decades of government and corporate emphasis on short-term development at the expense of funding long-term, basic breakthrough research.

Looking forward, author John Kao, the author of the book Innovation Nation, who is an entrepreneur himself and a former professor of entrepreneurship at Harvard Business School, asserts that *"we must play by a different set of rules. It used to be said that what was good for the United States was good for the world. Now we must reverse that logic and affirm that what is good for the world is good for the United States. ... Globalization seen through the lens of innovation can frame a new ethos for us."*

Translating this broad vision into action, we must start by recognizing that, just as we nurture our startups in the unique environment of Silicon Valley, we must provide a public market structure that nurtures our fledgling IPOs and that allows middle market underwriters to support these companies with sufficient liquidity and with thorough, responsible research coverage.

**U.S. policymakers must differentiate between the market support required by small IPOs and the needs of large companies**

**Today's unknown innovator has the potential to be tomorrow's global leader**

**The U.S. must enable the next generation of innovators to access public capital markets or continue to face the consequences of America's long-term global decline**

To respond effectively, however, our legislators and regulators must share a sense of urgency to develop a coherent national innovation agenda that acknowledges new capital formation and new job creation through IPOs as top national priorities.

In closing I urge you to help me deliver the message to our elected officials that we must support our emerging entrepreneurs through targeted securities regulation reform before we witness further declines in our country's leadership in innovation and add yet another sad footnote to America's storied past.

Thank you