Are Internet Stocks Over-Valued?

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INTERNET STOCKS: WHAT A RIDE IT HAS BEEN!
Can we justify its value?

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$610.0</td>
<td>$2,135.0</td>
<td>$6,938.8</td>
<td>$20,816.3</td>
<td>$62,448.8</td>
<td>$187,346.3</td>
<td><strong>$562,038.8</strong></td>
</tr>
<tr>
<td>Net Income</td>
<td>-$125.5</td>
<td>-$550.9</td>
<td>-$514.2</td>
<td>-$60.7</td>
<td>$1,892.8</td>
<td>$9,367.3</td>
<td>$28,101.9</td>
</tr>
<tr>
<td>Net Margin</td>
<td>-21%</td>
<td>-26%</td>
<td>-7%</td>
<td>0%</td>
<td>3%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Assets (NWC + FA)</td>
<td>-$75.0</td>
<td>$106.8</td>
<td>$346.9</td>
<td>$1,040.8</td>
<td>$3,122.4</td>
<td>$9,367.3</td>
<td>$28,101.9</td>
</tr>
<tr>
<td>Change in Assets (NWC + FA)</td>
<td>$181.8</td>
<td>$240.2</td>
<td>$693.9</td>
<td>$2,081.6</td>
<td>$6,244.9</td>
<td>$18,734.6</td>
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<tr>
<td>Free Cash Flow</td>
<td>-$732.7</td>
<td>-$754.3</td>
<td>-$754.5</td>
<td>-$188.8</td>
<td>$3,122.4</td>
<td>$9,367.3</td>
<td></td>
</tr>
<tr>
<td>Present Value at:</td>
<td>$30,608.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discount Rate</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth rate after 2008</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assumption:
- Sales Growth Rate: 250% 225% 200% 200% 200% 200%
- NWC+FA/Sales: 5.0% 5.0% 5.0% 5.0% 5.0% 5.0%
- Assume no significant depreciation
- Aggressive growth assumptions
- Same Margins as Base Case
Agenda

■ Is the stock market overvalued?
  – Can it help explain Internet Stocks.

■ Explanations.
  – Lower risk.
  – New Business Model.
  – New Economy.
  – The Internet “Gorilla.”

■ Lessons.
Is the Stock Market Overvalued?
Dow Jones Industrial Average
1980 - 1999
Standard & Poor’s 500 Index
1980 - 1999
NASDAQ Composite Index
1980 - 1999

Index Level

Wilshire 5000 Index
1980 - 1999
Various U.S. Stock Market Indices
1980 - 1999
Various U.S. Stock Market Indices
1990 - 1999
FTSE 100 Index
1984 - 1999
S&P 500, Nikkei 225, and FTSE 100
1980 - 1999
S&P 500, Nikkei 225, and FTSE 100
1990 - 1999

Index Level
(Jan 1990 = 1)

S&P 500
Nikkei 225
FTSE 100
Value Drivers
Glossary of Terms

\[
\begin{align*}
V &= \text{Market value of equity} \\
CF &= \text{Cash flow} \\
t &= \text{Time Period} \\
K &= \text{Discount rate}
\end{align*}
\]
Valuing a Firm

\[ V = \sum_{t=1}^{\infty} \frac{CF_t}{(1 + K)^t} \]
Valuing a Firm

- Three rules of valuation:
  - More cash is preferred to less cash.
  - Cash sooner is preferred to cash later.
  - Less risky cash is preferred to more risky cash.

- Combination of the three determine the value of any opportunity.
Explanations for High Valuations

- Less Risk
- The New Business Model
- The New Economy
- The Internet “Gorilla.”
Less Risk
Is Market Risk Constant?

Excess Market Returns: 1926 to 1997*

*Shaded areas identify NBER business cycle contraction periods.
<table>
<thead>
<tr>
<th></th>
<th>Likelihood</th>
<th>Duration (Years)</th>
<th>Risk Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Risk Periods</td>
<td>87%</td>
<td>7.2</td>
<td>2.9%</td>
</tr>
<tr>
<td>High-Risk Periods</td>
<td>13%</td>
<td>1.0</td>
<td>37.2%</td>
</tr>
<tr>
<td>All Periods</td>
<td>100%</td>
<td></td>
<td>7.4%</td>
</tr>
</tbody>
</table>

### Has the Risk Premium Changed Over Time?

<table>
<thead>
<tr>
<th>Periods</th>
<th>1926 to 1939</th>
<th></th>
<th></th>
<th>1940 to 1997</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Likelihood</td>
<td>Duration (Years)</td>
<td>Risk Premium</td>
<td>Likelihood</td>
<td>Duration (Years)</td>
<td>Risk Premium</td>
</tr>
<tr>
<td>Low-Risk</td>
<td>65%</td>
<td>4.0</td>
<td>2.5%</td>
<td>95%</td>
<td>4.1</td>
<td>2.5%</td>
</tr>
<tr>
<td>Periods</td>
<td>High-Risk</td>
<td>35%</td>
<td>1.9</td>
<td>35.3%</td>
<td>5%</td>
<td>0.2</td>
</tr>
<tr>
<td>All Periods</td>
<td>100%</td>
<td>14.0%</td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Lower Equity Risk Premium
Lessons

- Equity risk premium seems to be lower.
  - 4.2% versus 7.5%.
  - Lower risk economy.
  - More interest in investing in stocks.
    - Baby boomers have seen appreciation of stocks over past 70 years relative to bonds.

- Lower risk premium can help to explain.
  - High overall stock market.
  - Very high Internet valuations.
Why so Important to Internet Firms

- Payoff to Internet stocks in the distant future.

- Low equity risk premium would:
  - Greatly decrease the discounting of those future cash flows.
  - Make Internet stocks look attractive.
The New Business Model
The New Business Model

- **Amazon.com**
  - Receives money, and then acquires books
  - The larger the company grows, the more money it generates

- **Dell**
  - Receives money, and then builds computer
  - Cash generation more limited due to higher receivables
Amazon.com and Barnes & Noble

### 1997 Cash Flow

<table>
<thead>
<tr>
<th></th>
<th>Amazon.com</th>
<th>Barnes &amp; Noble</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payables</td>
<td>0.22</td>
<td>0.16</td>
</tr>
<tr>
<td>Receivables</td>
<td>0.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Inventories</td>
<td>0.06</td>
<td>0.30</td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>0.16</td>
<td>(0.16)</td>
</tr>
<tr>
<td>Net Plant, Property &amp; Equipment</td>
<td>0.06</td>
<td>0.17</td>
</tr>
<tr>
<td>Cash per $ of Sales</td>
<td>0.10</td>
<td>(0.33)</td>
</tr>
</tbody>
</table>

**Amazon.com generates 43¢ more cash per dollar of sales than Barnes & Noble**
Market Capitalization
Amazon.com and Barnes & Noble

$ Millions

Amazon.com
Barnes & Noble

Calendar Quarter

96Q1 96Q3 97Q1 97Q3 98Q1 98Q3 99Q1
1998 Cash Flow

<table>
<thead>
<tr>
<th></th>
<th>Dell</th>
<th>Compaq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payables</td>
<td>0.13</td>
<td>0.14</td>
</tr>
<tr>
<td>Receivables</td>
<td>0.11</td>
<td>0.22</td>
</tr>
<tr>
<td>Inventories</td>
<td>0.01</td>
<td>0.06</td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>0.00</td>
<td>(0.15)</td>
</tr>
<tr>
<td>Net Plant, Property &amp; Equipment</td>
<td>0.03</td>
<td>0.09</td>
</tr>
<tr>
<td>Cash per $ of Sales</td>
<td>(0.03)</td>
<td>(0.25)</td>
</tr>
</tbody>
</table>

Dell generates 22¢ more cash per dollar of sales than Compaq
Market Capitalization
Dell and Compaq

Calendar Quarter

$ Millions

Compaq

Dell
The New Business Model
Cash Intensity for S&P500 Companies

Cash Intensity = (Net PPE + Working Capital)/Sales
Effects of New Business Model

- Lower cash needs.
  - Lower working capital requirements.

- Lower asset intensity.
  - Produce only as needed.
  - Need less inventory.
  - Need less PPE.

- Effects of New Business Model.
  - Higher ROE.
  - Higher cash flows.
  - Greater value creation.
The New Economy
The New Economy

- The economy is increasingly dominated by technology.
- Computer hardware and software were the first phase of the economic transformation.
- Information and connectivity will be the second phase.
- The shifts are fundamental in nature.
The New Economy

- Manufacturing: 58%
- Technology: 10%
- Finance: 5%
- Other: 27%
The New Economy
1999 S&P500 Market Value, by Business Segment

Total Market Value of 1999 S&P 500 = $10 trillion
S&P 500 Sector Indices
1990 - 1998

Sector Indices


Technology Manufacturing Service Finance Other S&P 500
Current Market/Book Ratios for S&P 500 Companies

Selected Industry Segments

<table>
<thead>
<tr>
<th>Industry</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>16.4</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>9.4</td>
</tr>
<tr>
<td>Finance</td>
<td>3.9</td>
</tr>
</tbody>
</table>
The New Economy
Declining Computing Costs

Producer Price Index - Electronic Computers
The New Economy
Declining Computing Costs

![Graph showing declining cost of MIPS from 1991 to 1997.](image-url)
The New Economy
Higher Computer Productivity

Cumulative Processor Capacity, in Mips (Logarithmic scale)
Implications of the New Economy

- Computing is becoming a way of life.
- Pervading all aspects of business and consumer markets.
- Engine for the Internet will continue to explode.
  - New technologies and opportunities.
  - Ubiquitous platform.
- The Internet will change the way we live and do business.
The Internet “Gorilla”
Internet Soundbites

- In 1998, business spent $60 billion on products and services to develop their Internet presence.
- Internet traffic is doubling every 100 days.
- Business to business services estimated to be $200 billion in 2002.
- Worldwide Internet commerce could top $3.2 trillion in 2003.
Worldwide Online Households

US    Western Europe    Asia/Pacific    Japan    ROW
Online Purchase Intentions Accelerate in 1999
“Do you expect to make an online purchase in 1999?”

- Yes: 90%
- No: 10%
Online Purchase Intentions Accelerate in 1999

“Do you research off line purchases online?”

Yes: 100%
No: 10%
Amazon, AOL, Yahoo!, And eBay Are The Leading Shopping Destinations
“Where have you made online purchases?”

Enough Said!
Consumer Spending Online
“How much do you expect to spend online in 1999?”

- More than $500: 25%
- $51 to $100: 17%
- $101 to $500: 50%
- $50 or less: 8%
Bottom-Line on the Internet

- The opportunity is real.

- The opportunity is of a dimension that exceeds the magnitude of the industrial revolution.
  - Will change the way goods and services are delivered.
  - Pervade every aspect of personal and business life.

- Estimates of potential market size might be “too-low!”

- Those who dominate the market will be “huge.”
  - Wave of hardware and software firms in computer industry created $1 trillion in market value.
  - Internet will do the same.
Add them all up and what do you get?

- Less Risk
- The New Business Model
- The New Economy
- The Internet “Gorilla.”
## Valuation: Revisited

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<tr>
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<th>1998</th>
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<th>2002</th>
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<tbody>
<tr>
<td>Sales</td>
<td>$610.0</td>
<td>$1,220.0</td>
<td>$2,440.0</td>
<td>$4,270.0</td>
<td>$6,832.0</td>
<td>$10,248.0</td>
<td>$15,372.0</td>
</tr>
<tr>
<td>Net Income</td>
<td>-$125.5</td>
<td>-$314.8</td>
<td>-$180.8</td>
<td>-$12.4</td>
<td>$207.1</td>
<td>$512.4</td>
<td>$768.6</td>
</tr>
<tr>
<td>Net Margin</td>
<td>-21%</td>
<td>-26%</td>
<td>-7%</td>
<td>0%</td>
<td>3%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Assets (NWC + FA)</td>
<td>-$75.0</td>
<td>-$101.7</td>
<td>-$203.3</td>
<td>-$355.8</td>
<td>-$569.3</td>
<td>-$854.0</td>
<td>-$1,281.0</td>
</tr>
<tr>
<td>Change in Assets (NWC + FA)</td>
<td>-$26.7</td>
<td>-$101.7</td>
<td>-$152.5</td>
<td>-$213.5</td>
<td>-$284.7</td>
<td>-$427.0</td>
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<tr>
<td>Free Cash Flow</td>
<td>-$288.1</td>
<td>-$79.1</td>
<td>$140.1</td>
<td>$420.6</td>
<td>$797.1</td>
<td>$1,195.6</td>
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Present Value at: $30,657.31
Discount Rate: 12%
Growth rate after 2008: 10%

**Assumption:**
- **Sales Growth Rate:** 100% 100% 75% 60% 50% 50%
- **NWC+FA/Sales:** -8.3% -8.3% -8.3% -8.3% -8.3% -8.3%
- Assume no significant depreciation
- Aggressive growth assumptions
- Same Margins as Base Case

Believable!!
Lessons

- Internet is far from overvalued.
- Financial markets are a different beast.
- The Internet can, has, and will change the way people do business.
- If anything, the recent sell-off of Internet stocks has made them a good buy.