Economy + Internet Trends Outline

• Financial Market + Economy Update / Dashboard
  1. Financial Markets Have Rebounded, Technology Sector = Relatively Impressive.
  2. Leading Economic Indicators Seem to Have Turned Corner, Coincident / Lagging Indicators Still Weak.

• Mobile = Incremental Driver of Internet User / Usage Growth
  1. Mobile Internet Usage Is and Will Be Bigger than Most Think.
  2. Apple Mobile Share Should Surprise on Upside Near-Term.
  3. Next Generation Platforms (Social Networking + Mobile) Driving Unprecedented Change in Communications + Commerce.
  4. Mobile in Japan + Desktop Internet Provide Roadmaps for Mobile Growth + Monetization.
  5. 3G Adoption / Trends Vary By Geography.
  6. Carriers in USA / W. Europe Face Surging Network Demand But Uncertain Economics.

Morgan Stanley
Financial Markets Have Rebounded,
Technology = Relatively Impressive.
Note: all indices start at a value of 100 on 3/17/06; data as of 3/18/09; Source: FactSet.
Credit Spreads Narrowing = Easier to Borrow Money
But Borrowing Cost Still High vs. ‘Normal’

Credit Spreads (to U.S. Treasury Securities), 1925 – 2009 YTD

Current (10/09) Level: 299 bps

Note: Data as of 10/09. Source: Moody’s, Yield Book, Morgan Stanley Credit Strategy Research.
Stock Market Volatility Implies Relatively Stable Outlook
Volatility Index (VIX) Has Returned Near ‘Normal’

Chicago Board Options Exchange (CBOE) Volatility Index, 1990 – 2009 YTD

Note: Data as of 10/09. VIX is a measure of implied volatility of S&P 500 index options. Source: FactSet.
S&P500 Positive Earnings Estimate Revisions Rising After Largest Cuts in 20 Years (in C2008 / CQ1:09)


Rolling 12 month Forward EPS

Note: S&P 500 earnings estimate based on consensus forecasts, as of 10/09.
Source: IBES, Jason Todd, Morgan Stanley Research.
Technology Sector Shining Relative to Others
19% of S&P500 Market Capitalization vs. 15% in 2008


<table>
<thead>
<tr>
<th>Year</th>
<th>Information Technology</th>
<th>Financials</th>
<th>Health Care</th>
<th>Energy</th>
<th>Consumer Staples</th>
<th>Industrials</th>
<th>Consumer Discretionary</th>
<th>Utilities</th>
<th>Materials</th>
<th>Telecom Services</th>
<th>S&amp;P 500 Mkt Cap ($T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>9%</td>
<td>13</td>
<td>11</td>
<td>9</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>5</td>
<td>6</td>
<td>9</td>
<td>$5</td>
</tr>
<tr>
<td>1996</td>
<td>12%</td>
<td>15</td>
<td>10</td>
<td>9</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>$6</td>
</tr>
<tr>
<td>1997</td>
<td>12%</td>
<td>17</td>
<td>11</td>
<td>8</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>3</td>
<td>4</td>
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<td>$8</td>
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<tr>
<td>1998</td>
<td>18%</td>
<td>15</td>
<td>12</td>
<td>6</td>
<td>11</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>$10</td>
</tr>
<tr>
<td>1999</td>
<td>29%</td>
<td>13</td>
<td>14</td>
<td>7</td>
<td>11</td>
<td>11</td>
<td>13</td>
<td>3</td>
<td>3</td>
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<td>$12</td>
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<tr>
<td>2000</td>
<td>21%</td>
<td>17</td>
<td>14</td>
<td>6</td>
<td>12</td>
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<td>12</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>$12</td>
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<tr>
<td>2001</td>
<td>18%</td>
<td>20</td>
<td>15</td>
<td>6</td>
<td>11</td>
<td>12</td>
<td>11</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>$10</td>
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<tr>
<td>2002</td>
<td>14%</td>
<td>21</td>
<td>15</td>
<td>7</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>3</td>
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<td>$8</td>
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<tr>
<td>2003</td>
<td>18%</td>
<td>21</td>
<td>13</td>
<td>9</td>
<td>10</td>
<td>12</td>
<td>11</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>$10</td>
</tr>
<tr>
<td>2004</td>
<td>16%</td>
<td>21</td>
<td>13</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>$11</td>
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<tr>
<td>2005</td>
<td>15%</td>
<td>21</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>$11</td>
</tr>
<tr>
<td>2006</td>
<td>15%</td>
<td>22</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>$13</td>
</tr>
<tr>
<td>2007</td>
<td>15%</td>
<td>18</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>$13</td>
</tr>
<tr>
<td>2008</td>
<td>17%</td>
<td>18</td>
<td>13</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>$8</td>
</tr>
<tr>
<td>2009</td>
<td>15%</td>
<td>13</td>
<td>13</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>$10</td>
</tr>
</tbody>
</table>

Note: Data as of year end for 1995 – 2008, *2009 data as of 10/15/09, Green = largest sector by market capitalization.
Source: Bloomberg, FactSet, Morgan Stanley Research.
Intel as Proxy For Technology Spending
CQ3:09 Revenue (+17% Q/Q) = Highest CQ3 Sequential Growth in 30+ Years

Note: CQ4:09E based on midpoint of company guidance issued on 10/13/09. Source: Intel, FactSet.
Global Technology Revenue Estimates Imply Recovery…So Far, a 2001 Redux

Global Technology Sector Revenue & Y/Y Growth, CQ1:96 – CQ4:09E

Average Y/Y Growth = 10%

Note: Revenue / Y/Y Growth / CQ3 / CQ4:09E estimates compiled from 435 publicly traded global technology companies, data as of 10/15/09. Source: FactSet, Bloomberg, Morgan Stanley Research.
Technology IPO Market
2x Deal Volume…4x Dollar Volume YTD vs. 2008

Annual Technology IPO Dollar Volume & Deal Volume, 1980 – 2009 YTD

Note: Data as of 10/9/09. Source: Securities Data Corp., Colin Stewart, Morgan Stanley GCM.
Leading Economic Indicators Seem to Have Turned Corner, Coincident / Lagging Indicators Still Weak.
Domestic GDP + Consumption
Trends Becoming Less Bad

U.S. Real GDP vs. Real Personal Consumption Expenditures (PCE)
Q/Q % Change, CQ1:05 – CQ2:09

Note: Real GDP and real PCE are inflation and seasonally adjusted; Source: Bureau of Economic Analysis.
# Global GDP
## Growth Forecasts Have Turned Positive…Led by China / India

<table>
<thead>
<tr>
<th>Country / Region</th>
<th>2007</th>
<th>2008</th>
<th>IMF Forecasts, 10/09</th>
<th>Difference from 7/09 IMF Forecasts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>2009E</td>
<td>2010E</td>
</tr>
<tr>
<td>USA</td>
<td>2.0%</td>
<td>0.4%</td>
<td>-2.7%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Euro zone</td>
<td>2.7</td>
<td>0.7</td>
<td>-4.2</td>
<td>0.3</td>
</tr>
<tr>
<td>UK</td>
<td>2.6</td>
<td>0.7</td>
<td>-4.4</td>
<td>0.9</td>
</tr>
<tr>
<td>China</td>
<td>13.0</td>
<td>9.0</td>
<td>8.5</td>
<td>9.0</td>
</tr>
<tr>
<td>India</td>
<td>9.4</td>
<td>7.3</td>
<td>5.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Russia</td>
<td>8.1</td>
<td>5.6</td>
<td>-7.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Brazil</td>
<td>5.7</td>
<td>5.1</td>
<td>-0.7</td>
<td>3.5</td>
</tr>
<tr>
<td>Developed Markets(^{(1)})</td>
<td>2.7</td>
<td>0.6</td>
<td>-3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Emerging Markets(^{(2)})</td>
<td>8.3</td>
<td>6.0</td>
<td>1.7</td>
<td>5.1</td>
</tr>
<tr>
<td>World</td>
<td>5.2</td>
<td>3.0</td>
<td>-1.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Note: (1) IMF equivalent of “advanced economies”; (2) IMF equivalent of “emerging and developing economies”; 
Source: International Monetary Fund (IMF) World Economic Outlook (WEO) database, 10/09.
Advertising Spending Should Grow in 2010E Based on Regression Analysis


y = 3.2458x – 0.0475
R^2 = 0.6887

y – ad spend growth
x – real GDP growth

If real GDP Y/Y growth is… Ad spend Y/Y growth could be…

| current MS estimate range
| 5%  | 11% |
| 4%  | 8%  |
| 3%  | 5%  |
| 2%  | 2%  |
| 1%  | -2% |
| 0%  | -5% |
| -1% | -8% |
| -2% | -11%|
| -3% | -14%|
| -4% | -18%|
| -5% | -21%|

Note: R^2 of 0.6887 indicates that correlation is not perfect (n=23), and correlation does not equal causation.
Source: Zenith Optimedia, IMF, Morgan Stanley Research.
Retail Sales + eCommerce
Growth Troughed in CQ1:09

Adjusted Retail Sales vs. Adjusted E-Commerce Sales
Y/Y Growth, CQ3:01 – CQ2:09

Note: E-Commerce adjusted for eBay by adding eBay US gross merchandise volume and subtracting eBay US transaction revenue; Source: US Dept. of Commerce (CQ2:09), Morgan Stanley Research.
Consumer Confidence
Rising But Still Well Below ‘Normal’

USA Consumer Confidence Index (CCI), 1/78 – 9/09

30 Year Average
CCI = 95.06

2/09 Trough
CCI = 25.30

9/09
CCI = 53.07

Note: Index started in 1967 / benchmarked to 1985=100. The Index is calculated each month on the basis of a household survey of consumers’ opinions on current conditions and future expectations of the economy. Source: The Conference Board, 9/09.
Manufacturing
Returning to ‘Normal’

U.S. PMI (Purchasing Managers Index), 1/48 – 9/09

Note: PMI is a composite index based on five major indicators including: new orders, inventory levels, production, supplier deliveries, and employment environment. A PMI index over 50 indicates that manufacturing is expanding while anything below 50 means that the industry is contracting. Source: Institute for Supply Management (ISM).
Risk
Low Manufacturing Capacity Utilization Implies Weak Demand

USA Capacity Utilization, 1/67 – 8/09

Note: Capacity utilization measures the percentage of plant capacity being used, and is calculated as the ratio of actual output to potential output. Source: Federal Reserve, 8/09.
Risk
New Home Sales Off Historic Lows But Way Below ‘Normal’

USA Monthly New Houses Sold, 1/63 – 8/09

45 Year Average = 688K

1/09 Trough 329K

8/09 429K

Source: U.S. Census Bureau, 8/09.
Risk
Consumer Credit Card Defaults Rising

U.S. Consumer Credit Card Delinquency Rates, CQ1:91 – CQ2:09

Source: FDIC Commercial Bank Database, Betsy Graseck, Morgan Stanley Research.
Residential Mortgages Delinquency Rates, All / Prime / Subprime, CQ1:98 – CQ2:09

Note: Delinquencies limited to mortgage loans on one-to-four-unit residential properties, seasonally adjusted. CQ2:09 overall delinquency rate of 9.24% is the highest on record since CQ1:72 when data first became available. Source: Mortgage Bankers Association.
Total CMBS (Commercial Mortgage Backed Securities) Outstanding & Delinquency Rates, 1/02 – 9/09

- **8 Year Average Delinquency Rate = 1.17%**
- **9/09 CMBS Delinquency Rate = 4.06%**

**Note:** CMBS is a type of mortgage-backed security that is secured by the loan on a commercial property.

**Source:** TREPP, 9/09.
Risk
Unemployment High & Rising – USA at 10% in 9/09 vs. 6% Y/Y

U.S. State Unemployment Rates, 5-yr Lows vs. 8/08 vs. 8/09

Note: 9/09 preliminary USA unemployment rate = 9.8%; 9/09 state unemployment rates not available as of 10/15/09.
Risk
Unemployment Peak = Typically Key for Sustainable Economic Turn


Note: Unemployment rates from 1928–1943 are annual estimates from John Dunlop and Walter Galenson’s Labor in the Twentieth Century (1978); data unavailable between 1943-1948; Post 1948 unemployment data from BLS, peaks are: 9/49 - 7.9%; 9/54 - 6.1%; 7/58 - 7.5%; 5/61 – 7.1%; 8/71 - 6.1%; 5/75 - 9.0%; 11/82 - 10.8%; 6/92 - 7.8%; 7/03 - 6.3%. Latest data shows 9/09 unemployment rate at 9.8%, 100 basis points below 11/82 peak. Source: FactSet; Bureau of Labor Statistics. Morgan Stanley Research.

Morgan Stanley
Risk
Debt Levels at Historic Levels & Rising, USA Government Leading Charge

U.S. Domestic Credit Market Debt as % of GDP, 1929 – 2009 YTD
& Sector Share Breakdown

<table>
<thead>
<tr>
<th></th>
<th>% Share of Total Debt</th>
<th>1973 - 2009 Net Increase Amount ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government + GSE</td>
<td>24% 29% 35%</td>
<td>$17</td>
</tr>
<tr>
<td>Households</td>
<td>18% 30% 27%</td>
<td>$13</td>
</tr>
<tr>
<td>Corporates</td>
<td>51% 35% 22%</td>
<td>$10</td>
</tr>
<tr>
<td>Financials</td>
<td>7% 6% 16%</td>
<td>$8</td>
</tr>
</tbody>
</table>

Note: 2009 YTD data as of CQ2; GSE (Government Sponsored Enterprises) debt includes various agency-backed mortgages; Source: Federal Reserve, Ben Wattenberg, The Statistical History of the United States, From Colonial Times to the Present, Neil McLeish, Serena Tang, Morgan Stanley Research.
### USA Income Statement

#### Revenue ($B)

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($B)</th>
<th>Y/Y Growth</th>
<th>% of Revenue</th>
<th>Revenue ($B)</th>
<th>Y/Y Growth</th>
<th>% of Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2001</td>
<td>$1,991</td>
<td>-2%</td>
<td>$994</td>
<td>$994</td>
<td>50%</td>
<td>$916</td>
</tr>
<tr>
<td>F2005</td>
<td>$2,154</td>
<td>15%</td>
<td>$927</td>
<td>$794</td>
<td>35%</td>
<td>$891</td>
</tr>
<tr>
<td>F2009E</td>
<td>$2,106</td>
<td>-17%</td>
<td>$916</td>
<td>$151</td>
<td>8%</td>
<td>$139</td>
</tr>
</tbody>
</table>

#### Expense ($B)

<table>
<thead>
<tr>
<th>Year</th>
<th>Expense ($B)</th>
<th>Y/Y Growth</th>
<th>% of Expense</th>
<th>Expense ($B)</th>
<th>Y/Y Growth</th>
<th>% of Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2001</td>
<td>$1,863</td>
<td>4%</td>
<td>$992</td>
<td>$360</td>
<td>19%</td>
<td>$1,440</td>
</tr>
<tr>
<td>F2005</td>
<td>$2,472</td>
<td>8%</td>
<td>$1,284</td>
<td>$508</td>
<td>21%</td>
<td>$1,405</td>
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<tr>
<td>F2009E</td>
<td>$3,998</td>
<td>34%</td>
<td>$1,725</td>
<td>$495</td>
<td>20%</td>
<td>$1,755</td>
</tr>
</tbody>
</table>

#### Profit / Loss ($B)

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit / Loss ($B)</th>
<th>Profit Margin (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2001</td>
<td>$128</td>
<td>6%</td>
</tr>
<tr>
<td>F2005</td>
<td>-$318</td>
<td>-15%</td>
</tr>
<tr>
<td>F2009E</td>
<td>-$1,892</td>
<td>-90%</td>
</tr>
</tbody>
</table>

#### Comments

- **Primary source of federal government revenue, varies with economic growth**
- **Second largest source of revenue, but massively underfunding growing liabilities**
- **Like individual income taxes, varies with economic growth**
- **Includes excise / estate / gift taxes, deposits of earnings and customs duties**
- **Fastest growing line item on a normalized basis, causing massive future burdens**
- **Includes infrastructure / health / education spending / disaster relief / emergency financial (TARP) + economic (ARRA) stimulus packages**
- **Steady rise in defense spending related to ongoing War on Terror**
- **Decreasing Interest expense from lower short-term interest rates and lower costs for inflation-indexed securities**

Note: US federal government fiscal year ends in September. Non-defense discretionary spending in 2009 includes "one-time" items such as $549B TARP funds (excl. $70B returned, incl. $100B to Public-Private Partnership Fund; $85B to automakers; $70B to AIG; $50B to Citigroup; $45B to BofA; $79B to other financial firms; $55B TALF; $50B to homeowners), payment of $96B to Fannie Mae / Freddie Mac, and ARRA (American Recovery and Reinvestment Act) related spending of ~$120B. Entitlement / mandatory expense include social security, Medicare, Medicaid, and income security (unemployment / food / housing / retirement benefits). Source: Department of the Treasury, Office of Management and Budget, and Congressional Budget Office.

Morgan Stanley
Web 2.0 Summits
6 Years of Internet Trends for John & Tim

2004 – **China Internet** - Opportunity is Immense

2005 – **Broadband** - Becoming Pervasive, Driving Growth in Communications / UGC

2006 – **Online Video** - Building Momentum

2007 – **Social Networks** - Proliferating, Driving Platform Changes

2008 – **Economic Recession** - Creates Challenge + Opportunity for Web Companies

2009 – **Mobile Internet** - Is and Will be Bigger Than Most Think

UGC = User-Generated Content. Note: Previous / current Web 2.0 Summit presentations can be downloaded at http://www.morganstanley.com/institutional/techresearch
8 Key Mobile Internet Themes

1) Mobile Internet Usage Is and Will Be Bigger than Most Think.
2) Apple Mobile Share Should Surprise on Upside Near-Term.
3) Next Generation Platforms (Social Networking + Mobile) Driving Unprecedented Change in Communications + Commerce.
4) Mobile in Japan + Desktop Internet Provide Roadmaps for Mobile Growth + Monetization.
5) 3G Adoption / Trends Vary By Geography.
6) Carriers in USA / W. Europe Face Surging Network Demand But Uncertain Economics.
7) Regulators Can Help Advance / Slow Mobile Internet Evolution.
8) Mobile-Related Share Shifts Will Create / Destroy Material Shareholder Wealth.

Morgan Stanley
Explosive Apple iPhone / iTouch ramp shows that usage of mobile devices on IP-based networks should surprise to upside for years to come and bandwidth suppliers (telcos / cable) face serious challenges in managing incremental traffic.
Mobile Internet
Next Major Computing Cycle

- **Mainframe Computing** 1950s
- **Mini Computing** 1960s
- **Personal Computing** 1980s
- **Desktop Internet Computing** 1990s
- **Mobile Internet Computing** 2000s

Morgan Stanley
New Computing Cycles Supported by 10x More Devices
Opportunities for Semiconductor / Hardware / Software / Services

Computing Growth Drivers Over Time, 1960 – 2020E

Note: PC installed base reached 100MM in 1993, cellphone / Internet users reached 1B in 2002 / 2005 respectively;
Source: ITU, Mark Lipacis, Morgan Stanley Research.
Mobile Internet Outpaces Desktop Internet Adoption
iPhone + iTouch Users = 8x AOL Users 8 Quarters After Launch

First 20 Quarters Since Launch

Note: *AOL subscribers data not available before Q3:94; Netscape users limited to US only.
Source: Company Reports, Morgan Stanley Research.

~57MM
~25MM
~11MM
~7MM

Morgan Stanley
Real-Time Wireless Remote Controls Everywhere
Number / Types of Cloud-Based Mobile Connected Devices Growing Rapidly

- **GPS** – 421MM+ chipsets sold in 2008E, +57% Y/Y; Cell Phones / PDAs = 60% of GPS shipments

- **3G** – 490MM global users, +45% Y/Y in CQ2, >12% mobile user penetration, rising to 44% by 2013E…Japan / W. Europe / USA already >30% penetration.

- **Wi-Fi** – 319MM chipsets sold in 2008E, +42% Y/Y with 862MM installed base; ~60% of iPhone / iTouch usage may be on Wi-Fi, providing crucial (~10x faster) offload to stressed 3G networks

- **Bluetooth** – 1.3B Bluetooth-enabled units shipped in 2008, +45% Y/Y; 2B+ Bluetooth devices in use

Source: 3G subscribers data per Informa, Wi-Fi usage estimates per AdMob, Wi-Fi shipments by Wi-Fi Alliance; installed base per iSuppli, assuming 4-yr replacement cycle; Bluetooth shipment per iSuppli, installed base per The Bluetooth Special Interest Group; GPS shipment per Future Horizons.
Global 3G Subscribers – Wireless Broadband
2010E Inflection Point, Penetration >20%

Global 3G+ Subscribers & Penetration, 2007 – 2014E

Note: 3G+ technologies include WCDMA, HSPA, TD-SCDMA, 1xEV-DO, LTE and WiMax.
Source: Ovum, Morgan Stanley Research.
Thanks to the iPhone 3G and, to a lesser extent, Google’s Android phone, millions of people are now walking around with a gizmo in their pocket that not only knows where they are but also plugs into the Internet to share that info, merge it with online databases, and find out what – and who – is in the immediate vicinity…Simply put, location changes everything. This one input – our coordinates – has the potential to change all the outputs. Where we shop, who we talk to, what we read, what we search for, where we go – they all change once we merge location and the Web.

– Mathew Honan, WIRED magazine, 1/19/09
Near term, Apple is driving the platform change to mobile computing. Its mobile ecosystem (iPhone + iTouch + iTunes + accessories + services) market share / impact should surprise on upside for at least the next 1-2 years.

Long term, emerging markets competition, open mobile web (paced by likes of Google Android) and carrier limitations pose challenges. RIM likely to maintain enterprise lead for 1-2 years owing to installed base.
Momentum Favors Apple iPhone + iTouch Ecosystem
Fastest Hardware User Growth in Consumer Tech History

Global Cumulative Unit Shipments in First 10 Quarters
iPhone + iTouch vs. Wii / DS / PSP / iPod / BlackBerry

Note: iPhone launched in CQ2:07; iTouch launched in CQ3:07; iPod launched in CQ4:01; Wii launched in CQ4:06; DS launched in CQ4:04; PSP launched in CQ1:05; Blackberry smartphone launched in C2002. Source: Apple, Nintendo, Sony, RIM, Katy Huberty, Morgan Stanley Research.
Mobile Internet Usage Likely a Leading Indicator of Smartphone Shipments

iPhone / Android Usage Share Much Higher than Shipment Share

Global Smartphone Share of HTML Mobile Page View / Mobile Internet + Apps Usage / Unit Shipments

Note: Net Applications collects data from ~160MM monthly visitors on mobile devices that render full HTML pages and Javascript. Visits to WAP pages are excluded. Source: AdMob Mobile Metrics Report, 4/09, Net Applications, Gartner.

Morgan Stanley
Improvements in social networking and mobile computing platforms (led by Facebook + Apple ecosystems) are fundamentally changing ways people communicate with each other and ways developers / advertisers / vendors reach consumers.

Mobile devices will evolve as remote controls for ever expanding types of real-time cloud-based services, including emerging category of location-based services, creating opportunities + dislocations, empowering consumers in unprecedented + transformative ways.
Facebook
Largest Share Gainer of Online Usage Over Past 3 Years

Share of Global Online Time Spent, 6/06 – 8/09

Morgan Stanley

Source: comScore global, 8/09.
<table>
<thead>
<tr>
<th>Platform</th>
<th>Users</th>
<th>Y/Y Growth</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>YouTube</td>
<td>445MM(1)</td>
<td>+35%</td>
<td>#2 site in global minutes; 1B+ video views each day, 20+ hours of video uploaded each minute; #2 global search engine – 17B search queries on YouTube in 8/09 (+80% Y/Y) vs. Yahoo! sites’ 9B searches (+8% Y/Y)(1,2,3)</td>
</tr>
<tr>
<td>facebook</td>
<td>390MM(1)</td>
<td>+153%</td>
<td>#1 site in global minutes – 6B+ minutes spent on Facebook each day; 2B+ pieces of content shared every week; 2B+ photos / 14MM+ videos shared every month; 350K+ applications / 1MM+ developers(1,4)</td>
</tr>
<tr>
<td>twitter</td>
<td>55MM(5)</td>
<td>+1171%</td>
<td>Real-time micro-broadcasting; ~5K tweets per second during peak times(5); available via web + apps + SMS</td>
</tr>
<tr>
<td>demand MEDIA</td>
<td>55MM(5)</td>
<td>+46%</td>
<td>3B+ social media interactions per month across 6 web domains / 1B+ cumulative video streams / ~3K pieces of content produced per day(6)</td>
</tr>
</tbody>
</table>

Source: (1) comScore global 8/09; (2) YouTube; (3) comScore qSearch global, 8/09; (4) Facebook; (5) estimated peak time tweets during President Obama’s inauguration in 1/09; (6) Demand Media.
New Communications Platforms
Facebook = Unified Communication + Multimedia Repository in Your Pocket

- Messages
- VoIP Calls
- Chat
- Play Games
- Wall Posts
- Share Videos / Music / Photos / Stories

Connectivity / Presence provided by Mobile Phone

Morgan Stanley
Mobile Social Networking in Japan
~3x Greater (and Rising) than Desktop Social Networking per Mixi

Mixi’s (Japan’s Leading Social Network) Monthly Page Views, Mobile vs. PC, CQ2:06 – CQ1:09

Note: Mixi is one of Japan’s leading social networking sites on PC and mobile with 23MM registered users as of 5/09. It monetizes mobile usage via sales of avatars, customized homepages and other premium services.
Source: Mixi, Naoshi Nema, Morgan Stanley Research.
Apple Unshackled Mobile Developers from Carrier Walled Gardens
Leveraged 100MM+ iTunes Users Trained to Purchase Digital Goods Apple’s Way

iTunes on PC  Linked Credit Cards / Gift Cards  iTunes on iPhone  App Store on iPhone

One-Click Purchase  Tap to Buy

Source: Apple.
### Mobile Web Sites’ Share of UK Mobile Internet Users

<table>
<thead>
<tr>
<th>Site</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carriers</td>
<td>57%</td>
<td>22%</td>
</tr>
<tr>
<td>Google</td>
<td>44%</td>
<td>82%</td>
</tr>
<tr>
<td>BBC</td>
<td>34%</td>
<td>56%</td>
</tr>
<tr>
<td>Nokia</td>
<td>24%</td>
<td>56%</td>
</tr>
<tr>
<td>Yahoo!</td>
<td>15%</td>
<td>40%</td>
</tr>
<tr>
<td>eBay</td>
<td>11%</td>
<td>31%</td>
</tr>
<tr>
<td>Microsoft</td>
<td>11%</td>
<td>30%</td>
</tr>
<tr>
<td>Webmails</td>
<td>10%</td>
<td>28%</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>7%</td>
<td>27%</td>
</tr>
<tr>
<td>Wikipedia</td>
<td>7%</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Note:** Share of users refers to the percent of users who have accessed these sites on a mobile phone during each year; i.e. 82% of UK mobile Internet users accessed Google in 2008, up from 44% in 2007. Source: Nokia Siemens Networks, Nokia UK Smartphone Study.
Facebook + Apple iPhone / iTouch
Driving Independent / Overlapping Innovation in Social Networking + Mobile Platforms

Facebook
- 390MM users (+153% Y/Y)
- 350K+ Apps
- 500MM+ Downloads

Apple iPhone / iTouch
- 57MM users (+166% Y/Y)
- 85K+ Apps
- 2B+ Downloads

Social Networking

Mobile

Note: Facebook data as of 9/09, Apple data as of 10/09. Source: comScore, Facebook, Apple.
Mobile Internet development in Japan and desktop Internet business models indicate significant runways for mobile online commerce / paid services / advertising monetization; data access is likely to lose relative revenue share in mobile Internet ecosystem.
Japan’s Mobile Internet Revenue Mix Shows Growth Potential for eCommerce, Paid Services + Advertising

Note: Mobile online commerce includes retail sales of physical goods and digital / virtual goods such as ringtones / wallpapers / avatars; mobile paid services include travel / hotel booking + mobile banking / brokerage services.

Source: Naoshi Nema / Hironori Tanaka for Japan data, Morgan Stanley Research.
Mobile Commerce Ramping Rapidly in Japan
18% of Rakuten’s CQ1 eCommerce Revenue Derived from Mobile

18% of Rakuten’s CQ1 eCommerce Revenue Derived from Mobile

Mobile Commerce Ramping Rapidly in Japan
18% of Rakuten’s CQ1 eCommerce Revenue Derived from Mobile

Note: Rakuten Ichiba is Japan’s leading eCommerce company, eCommerce revenue excludes travel.
Source: Rakuten, Naoshi Nema, Morgan Stanley Research.
While Vendors / Advertisers Tend to ‘Pay’ on Desktop Internet (via Advertising + eCommerce)…

Revenue Mix for Top 50 Global Internet (ex. Data Access) Companies 2008 – $91B

Users Pay for Instant Access

- Advertising: 40%
- eCommerce: 35%
- Paid Services: 25%
- Digital Content (Music, Video…): 5%

Note: eCommerce is limited to online retail goods sales; paid services include online banking, travel services…; top 50 global Internet companies ranked by 2008 revenue. Source: FactSet, company data, Morgan Stanley Research.
…Users Tend to ‘Pay’ on Mobile Internet (via Premium Services)

Mobile Internet - Revenue Mix (ex. Data Access)
2008E – $37B

- Users Pay for Instant Access
- Digital Content (Wallpaper, Ringtone, Downloadable Game, Music, Video…)
  54%
- Users Pay for Advertising
  5%
- eCommerce
  73%
- Paid Services
  22%

Note: eCommerce is limited to online retail goods sales; paid services include online banking, travel services; Source: IDC, eMarketer, Juniper Research, Morgan Stanley Research.
Regional 3G adoption trends, in part, will dictate geographic advancements in mobile Internet products / services. Emerging markets lag developed markets.
### 3G Penetration Inflection Points Vary by Region


#### 3G* Connections & Penetration by Region, 2007 – 2014E

(All connection numbers in 000s)

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Europe</td>
<td>79,617</td>
<td>126,724</td>
<td>205,962</td>
<td>299,220</td>
<td>381,422</td>
<td>448,691</td>
<td>499,686</td>
<td>549,615</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>17%</td>
<td>25%</td>
<td>39%</td>
<td>54%</td>
<td>67%</td>
<td>77%</td>
<td>85%</td>
<td>92%</td>
</tr>
<tr>
<td>Japan</td>
<td>72,690</td>
<td>88,434</td>
<td>101,320</td>
<td>110,823</td>
<td>116,581</td>
<td>120,463</td>
<td>123,217</td>
<td>124,770</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>72%</td>
<td>84%</td>
<td>91%</td>
<td>96%</td>
<td>98%</td>
<td>99%</td>
<td>99%</td>
<td>100%</td>
</tr>
<tr>
<td>Asia / Pacific (ex. Japan)</td>
<td>50,163</td>
<td>83,514</td>
<td>151,192</td>
<td>295,230</td>
<td>482,981</td>
<td>693,995</td>
<td>918,063</td>
<td>1,135,626</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>4%</td>
<td>5%</td>
<td>7%</td>
<td>13%</td>
<td>19%</td>
<td>25%</td>
<td>31%</td>
<td>37%</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>20%</td>
<td>29%</td>
<td>38%</td>
<td>46%</td>
<td>54%</td>
<td>61%</td>
<td>67%</td>
<td>74%</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>8,785</td>
<td>19,918</td>
<td>40,944</td>
<td>72,321</td>
<td>120,291</td>
<td>139,960</td>
<td>166,288</td>
<td>199,977</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>2%</td>
<td>5%</td>
<td>9%</td>
<td>16%</td>
<td>26%</td>
<td>29%</td>
<td>34%</td>
<td>40%</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td>5,781</td>
<td>18,424</td>
<td>50,409</td>
<td>91,085</td>
<td>165,564</td>
<td>239,805</td>
<td>309,251</td>
<td>383,238</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>1%</td>
<td>3%</td>
<td>7%</td>
<td>12%</td>
<td>19%</td>
<td>25%</td>
<td>30%</td>
<td>35%</td>
</tr>
<tr>
<td>South &amp; Central America</td>
<td>3,126</td>
<td>9,265</td>
<td>21,875</td>
<td>40,448</td>
<td>59,107</td>
<td>80,087</td>
<td>100,027</td>
<td>122,258</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>1%</td>
<td>2%</td>
<td>4%</td>
<td>7%</td>
<td>10%</td>
<td>12%</td>
<td>15%</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>273,469</td>
<td>429,739</td>
<td>688,278</td>
<td>1,054,810</td>
<td>1,503,397</td>
<td>1,927,837</td>
<td>2,347,804</td>
<td>2,776,058</td>
</tr>
<tr>
<td><strong>3G Penetration</strong></td>
<td>8%</td>
<td>11%</td>
<td>15%</td>
<td>21%</td>
<td>27%</td>
<td>33%</td>
<td>38%</td>
<td>43%</td>
</tr>
</tbody>
</table>

**Note:** Regions ranked by 2008 absolute numbers of 3G connections. 3G* technologies include WCDMA, HSPA, TD-SCDMA, 1xEV-DO, LTE and WiMax. Source: Ovum, Morgan Stanley Research.
Global mobile IP traffic likely to grow 66x by 2013E (with 130% CAGR), per Cisco. Increasing 3G / smartphone penetration + emerging usage models (such as video / audio streaming) likely to put significant stress on carrier wireless networks.

Carriers will ultimately need to compete on strength of their macro networks, plus availability of Wi-Fi. Scale in mobile market share / full network sharing agreements / co-operation with fixed / Wi-Fi providers will be key.

Pricing decisions will be driven by competitive pressure, but will need to take account of potential for VoIP to erode voice revenue. Tiered data pricing (speed, quantity) will likely be key to growing revenue long-term.

Source: Cisco, Nick Delfas, Morgan Stanley Research.
Heavy Mobile Data Users
Likely to Triple to 1B+ by 2013E

Wireless modems (1,000MB 3G mobile data consumption per month) / iPhones (200MB) / Other smartphones (20MB)

Global Wireless Modem / iPhone / Other Smartphone Users, 2008 – 2013E

CAGR

Wireless Modem Users 155%
iPhone Users 153%
Other Smartphone Users 123%

Source: Wireless modem forecast per Ovum, iPhone user forecast per Katy Huberty, Morgan Stanley Research.
AT&T
50x Mobile Data Traffic Increase in Past 3 Years

AT&T Mobile Data Traffic Growth, CQ2:06 – CQ2:09

4,932% Increase

Source: AT&T.
Wi-Fi = Material Portion of USA iPhone Traffic, per AdMob
Wi-Fi Providing Some Relief to Challenged 3G Networks

Optimized Wi-Fi Can Be…

10x Faster vs. 3G Speed

35MM* Hotspots
Global Free / Paid / Community Wi-Fi Access Points

70% Cheaper vs. 3G Networks
Cost Per Bit + 3G Monthly Data Plans

862MM Devices
Large & Growing Installed Base, 2008

Note: 42% of iPhone usage happen on Wi-Fi networks per AdMob 11/08. 35MM Wi-Fi networks discovered / registered by WeFi members, including 275K public free & paid access points; community access points include neighborhood / building / office / broadcasted home Wi-Fi networks. Global total number of Wi-Fi access points likely to be much higher. Source: AT&T, In-Stat, Wi-Fi Alliance, WeFi. Morgan Stanley Research.
Key Theme # 7
Regulators Can Help Advance / Slow Mobile Internet Evolution

**Potential Supports:**

1. Net neutrality enforcement = key to drive decentralized mobile Internet innovation. Key question whether regulators allow continued blocking of bandwidth-intensive apps on mobile or leave it to mobile operators to adopt tiered bandwidth pricing.

2. International data roaming price ceilings (price reductions of >50%) should encourage mobile Internet usage, particularly in Europe.

**Potential Drags:**

1. Copyright protection - proposed laws (France, UK, Sweden) to cut off persistent mobile Internet illegal file sharers likely to encourage development of mobile payment system, but could increase overhead for carriers.

2. Zoning laws could continue to slow 3G network rollout – but network sharing (as shown by Vodafone + O2 in W. Europe) may be a partial answer.

3. China / India 3G licenses (issued in 1/09 / expected in CQ4:09E, respectively) reshape competitive landscape for carriers. High license prices or standards confusion could impede rollout / adoption.

Morgan Stanley

Source: Nick Delfas, Morgan Stanley Research.
Key Theme # 8
Mobile-Related Share Shifts Will Create / Destroy Material Shareholder Wealth

Massive technology changes typically shift dynamics between incumbents / attackers creating winners / losers.
Mobile Internet Likely to Follow Timing & Development Patterns of Desktop Internet Market

Timing & Development of Internet Market Segment – From Our 1996 Internet Retailing Report

Path of Growth/Digestion/Growth...
- New Phases/Segments Drive New Growth

Source: Morgan Stanley Research.
<table>
<thead>
<tr>
<th>Technology Cycles - Wealth Creation / Destruction</th>
<th>New Companies Often Win Big in New Cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mainframe Computing 1950s</strong></td>
<td><strong>Mini Computing 1960s</strong></td>
</tr>
<tr>
<td>Winners</td>
<td>Winners</td>
</tr>
<tr>
<td>IBM, NCR, Control Data, Sperry, Honeywell, Burroughs</td>
<td>Digital Equipment, Data General, HP, Honeywell, Prime, Computervision, Wang Labs</td>
</tr>
<tr>
<td><strong>Personal Computing 1980s</strong></td>
<td><strong>Desktop Internet Computing 1990s</strong></td>
</tr>
<tr>
<td>Winners</td>
<td>Winners</td>
</tr>
<tr>
<td>Microsoft, Cisco, Intel, Apple, IBM, Oracle, EMC, Dell, HP, Compaq</td>
<td>Google, AOL, eBay, Yahoo!, Yahoo! Japan, Amazon.com, Tencent, Alibaba, Baidu, Rakuten</td>
</tr>
<tr>
<td><strong>Mobile Internet Computing 2000s</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Winners from 1950s to 1980s based on Fortune 500 rankings (revenue-based), desktop Internet winners based on wealth created from 1995 to respective peak market capitalizations. Source: Factset, Fortune, Morgan Stanley Research.
# Appendix

## USA Income Statement, F2000 – F2009E

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Y/Y Growth</strong></td>
<td>11%</td>
<td>-2%</td>
<td>-7%</td>
<td>-4%</td>
<td>5%</td>
<td>15%</td>
<td>12%</td>
<td>7%</td>
<td>-2%</td>
<td>-17%</td>
</tr>
<tr>
<td>Individual Income Taxes</td>
<td>$1,005</td>
<td>$994</td>
<td>$858</td>
<td>$794</td>
<td>$809</td>
<td>$927</td>
<td>$1,044</td>
<td>$1,164</td>
<td>$1,146</td>
<td>$916</td>
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<tr>
<td><strong>Y/Y Growth</strong></td>
<td>14%</td>
<td>-1%</td>
<td>-14%</td>
<td>-8%</td>
<td>2%</td>
<td>15%</td>
<td>13%</td>
<td>11%</td>
<td>-2%</td>
<td>-20%</td>
</tr>
<tr>
<td>% of Revenue</td>
<td>50</td>
<td>50</td>
<td>46</td>
<td>45</td>
<td>43</td>
<td>43</td>
<td>43</td>
<td>45</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>Social Insurance Taxes</td>
<td>$653</td>
<td>$694</td>
<td>$701</td>
<td>$713</td>
<td>$733</td>
<td>$794</td>
<td>$838</td>
<td>$870</td>
<td>$900</td>
<td>$891</td>
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<tr>
<td><strong>Y/Y Growth</strong></td>
<td>7%</td>
<td>6%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>8%</td>
<td>6%</td>
<td>4%</td>
<td>4%</td>
<td>-1%</td>
</tr>
<tr>
<td>% of Revenue</td>
<td>32</td>
<td>35</td>
<td>38</td>
<td>40</td>
<td>39</td>
<td>37</td>
<td>35</td>
<td>34</td>
<td>36</td>
<td>42</td>
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<tr>
<td>Corporate Income Taxes</td>
<td>$207</td>
<td>$151</td>
<td>$148</td>
<td>$132</td>
<td>$189</td>
<td>$278</td>
<td>$354</td>
<td>$370</td>
<td>$304</td>
<td>$139</td>
</tr>
<tr>
<td><strong>Y/Y Growth</strong></td>
<td>12%</td>
<td>-27%</td>
<td>-2%</td>
<td>-11%</td>
<td>44%</td>
<td>47%</td>
<td>27%</td>
<td>5%</td>
<td>-18%</td>
<td>-54%</td>
</tr>
<tr>
<td>% of Revenue</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>14</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>$161</td>
<td>$152</td>
<td>$146</td>
<td>$144</td>
<td>$149</td>
<td>$154</td>
<td>$172</td>
<td>$165</td>
<td>$174</td>
<td>$160</td>
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<tr>
<td><strong>Y/Y Growth</strong></td>
<td>6%</td>
<td>-5%</td>
<td>-4%</td>
<td>-2%</td>
<td>3%</td>
<td>4%</td>
<td>11%</td>
<td>-4%</td>
<td>5%</td>
<td>-8%</td>
</tr>
<tr>
<td>% of Revenue</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
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</thead>
<tbody>
<tr>
<td><strong>Y/Y Growth</strong></td>
<td>5%</td>
<td>4%</td>
<td>8%</td>
<td>7%</td>
<td>6%</td>
<td>8%</td>
<td>7%</td>
<td>3%</td>
<td>9%</td>
<td>34%</td>
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<tr>
<td>Entitlement / Mandatory</td>
<td>$927</td>
<td>$992</td>
<td>$1,060</td>
<td>$1,150</td>
<td>$1,225</td>
<td>$1,284</td>
<td>$1,351</td>
<td>$1,450</td>
<td>$1,509</td>
<td>$1,725</td>
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<tr>
<td><strong>Y/Y Growth</strong></td>
<td>30%</td>
<td>7%</td>
<td>7%</td>
<td>8%</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
<td>7%</td>
<td>4%</td>
<td>14%</td>
</tr>
<tr>
<td>% of Expense</td>
<td>52</td>
<td>53</td>
<td>53</td>
<td>53</td>
<td>53</td>
<td>52</td>
<td>51</td>
<td>51</td>
<td>51</td>
<td>43</td>
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<tr>
<td>Non-Defense Discretionary</td>
<td>$345</td>
<td>$360</td>
<td>$432</td>
<td>$453</td>
<td>$452</td>
<td>$508</td>
<td>$556</td>
<td>$490</td>
<td>$605</td>
<td>$1,440</td>
</tr>
<tr>
<td><strong>Y/Y Growth</strong></td>
<td>-29%</td>
<td>4%</td>
<td>20%</td>
<td>5%</td>
<td>0%</td>
<td>12%</td>
<td>9%</td>
<td>-12%</td>
<td>23%</td>
<td>138%</td>
</tr>
<tr>
<td>% of Expense</td>
<td>19</td>
<td>19</td>
<td>21</td>
<td>21</td>
<td>20</td>
<td>21</td>
<td>21</td>
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<td>36</td>
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<tr>
<td>Defense</td>
<td>$294</td>
<td>$305</td>
<td>$348</td>
<td>$405</td>
<td>$456</td>
<td>$495</td>
<td>$522</td>
<td>$551</td>
<td>$616</td>
<td>$690</td>
</tr>
<tr>
<td><strong>Y/Y Growth</strong></td>
<td>7%</td>
<td>4%</td>
<td>14%</td>
<td>16%</td>
<td>13%</td>
<td>9%</td>
<td>5%</td>
<td>6%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>% of Expense</td>
<td>16</td>
<td>16</td>
<td>17</td>
<td>19</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>Net Interest on Public Debt</td>
<td>$223</td>
<td>$206</td>
<td>$171</td>
<td>$153</td>
<td>$160</td>
<td>$184</td>
<td>$227</td>
<td>$237</td>
<td>$253</td>
<td>$143</td>
</tr>
<tr>
<td><strong>Y/Y Growth</strong></td>
<td>-3%</td>
<td>-8%</td>
<td>-17%</td>
<td>-10%</td>
<td>5%</td>
<td>15%</td>
<td>23%</td>
<td>5%</td>
<td>7%</td>
<td>-44%</td>
</tr>
<tr>
<td>% of Expense</td>
<td>12</td>
<td>11</td>
<td>9</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>4</td>
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<tbody>
<tr>
<td><strong>Profit Margin (%)</strong></td>
<td>12%</td>
<td>6%</td>
<td>-9%</td>
<td>-21%</td>
<td>-22%</td>
<td>-15%</td>
<td>-10%</td>
<td>-6%</td>
<td>-18%</td>
<td>-90%</td>
</tr>
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Note: US federal government fiscal year ends in September. Non-defense discretionary spending in 2009 includes “one-time” items such as $549B TARP funds (excl. $70B returned, incl. $100B to Public-Private Partnership Fund; $85B to automakers; $70B to AIG; $50B to Citigroup; $45B to BoA; $79B to other financial firms; $55B TALF; $50B to homeowners), payment of $96B to Fannie Mae / Freddie Mac, and ARRA (American Recovery and Reinvestment Act) related spending of ~$120B. Entitlement / mandatory expense include social security, Medicare, Medicaid, and income security (unemployment / food / housing / retirement benefits). Source: Department of the Treasury, Office of Management and Budget, and Congressional Budget Office.
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<table>
<thead>
<tr>
<th>Stock Rating Category</th>
<th>Coverage Universe</th>
<th>Investment Banking Clients (IBC)</th>
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<tbody>
<tr>
<td></td>
<td>Count</td>
<td>% of Total</td>
</tr>
<tr>
<td>Overweight/Buy</td>
<td>843</td>
<td>36%</td>
</tr>
<tr>
<td>Equal-weight/Hold</td>
<td>1062</td>
<td>45%</td>
</tr>
<tr>
<td>Not-Rated/Hold</td>
<td>26</td>
<td>1%</td>
</tr>
<tr>
<td>Underweight/Sell</td>
<td>412</td>
<td>18%</td>
</tr>
<tr>
<td>Total</td>
<td>2,343</td>
<td>18%</td>
</tr>
</tbody>
</table>

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</tr>
<tr>
<td>Europe</td>
<td>20 Bank Street, Canary Wharf, London E14 4AD, United Kingdom</td>
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