

Morgan Stanley

Technology / Internet Trends

October 18, 2007

Web 2.0 Summit - San Francisco

mary.meeker@ms.com / david.joseph@ms.com / richard.ji@ms.com

Compiled by Morgan Stanley Global Technology Team

Morgan Stanley does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Customers of Morgan Stanley in the United States can receive independent, third-party research on the company or companies covered in this report, at no cost to them, where such research is available. Customers can access this independent research at www.morganstanley.com/equityresearch or can call 800-624-2063 to request a copy of this research. For our latest industry research, please visit www.morganstanley.com/techresearch.

For analyst certification and other important disclosures, refer to the Disclosure Section.

Technology Trends

www.morganstanley.com/techresearch

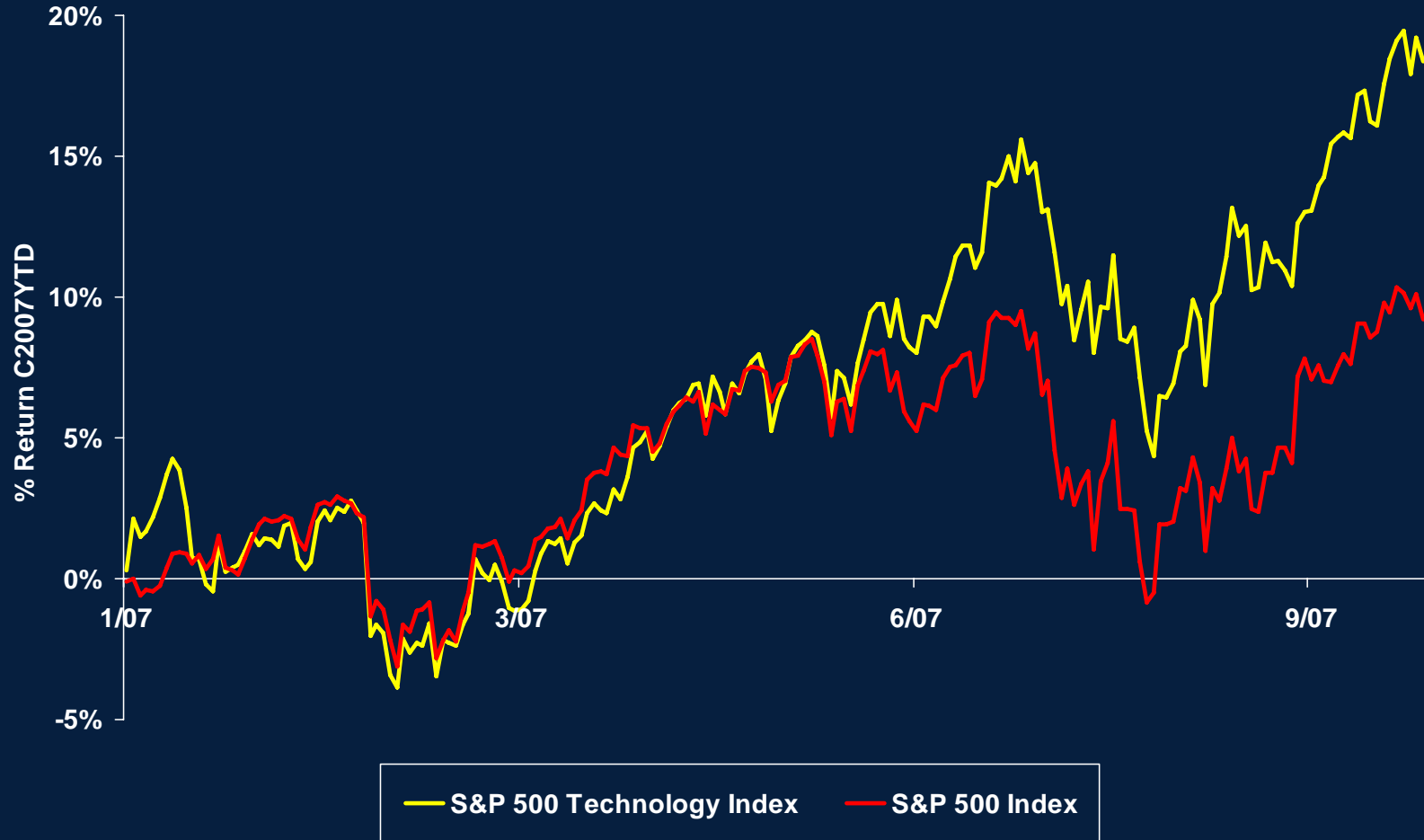
- Tech stock performance strong reflecting future expectations - for now
- Consumer demand for Internet-enabled services / products is strong
- Innovation in wireless products is accelerating
- Storage needs continue to ramp
- Data center growth is robust
- Emerging markets pacing next wave of technology adoption
- Enterprises may be coming out of relative purchasing funk
- Recession(s) = very serious potential challenge

3 Decades of Tech – Now = 2 Cycles

DESKTOP → LAN → INTERNET → CLOUD (broadband + wireless)

Tech Stocks Have Outperformed S&P500 YTD...

C2007YTD % Return of S&P500 Tech vs. S&P500



...Tech Stocks Have Outperformed S&P500 YTD

- Tech underperformed market in 6 of last 7 years
- Tech outperformed by 918 basis points YTD ⁽¹⁾
- Recent tech stock performance supported by positive earnings revisions
- Especially high recent private company valuations reflect market enthusiasm – superior execution required to justify valuations

Consumer Demand for New Internet-Enabled Services / Products is Strong

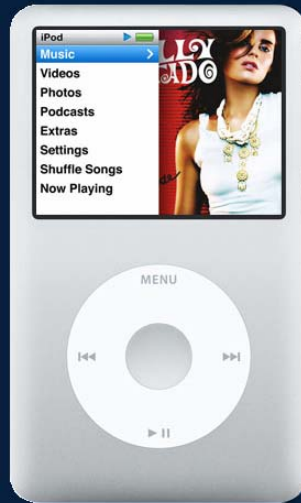
- Strong tech hardware / infrastructure demand related to demand for likes of Yahoo!, eBay, Amazon.com, Google, PayPal, iTunes, MySpace, YouTube, Skype, Facebook, WiFi, 3G...
- Consumers = #1 users of semiconductors (vs. IT + government) in 2003 / 2004 – enterprises had driven demand for technology products for most of history
- Consumer IP traffic should surpass enterprise for first time in 2008E (Cisco)
- IP traffic should nearly double every two years through 2011...with consumer IP traffic growing at 58% and business IP traffic growing at 21% CAGR...key drivers will be high definition video + high speed broadband penetration.' (Cisco)
- Technology is evolving faster than most enterprises' ability to deploy new products / services

Innovation in Wireless Products is Accelerating

- Apple iPhone, 3 Skype Phone, Amazon Kindle, Google 'GPhone'...
- 3G+ = 10% of 3.2B global mobile subscribers in C2007E – 21% (critical mass inflection point) of 3.9B in C2009E (iSuppli)
- Japan's mobile data traffic nearly 50% higher than any region...by 2011, rest of Asia-Pacific should surpass Japan (Cisco)
- 91% of mobile users keep phone within 1 meter reach 24x7 (China Mobile 50K survey)
- 15-20% of mobiles have GPS, 50% within 5 years (L. Gerhardy)
- Watch for new generation of Internet leaders to capitalize on growing access to fast Internet access on mobiles
- Incumbent carriers + handset manufacturers still desire to control markets - financial dislocations / costs / opportunities may be substantive as wireless industry evolves over next 2-5 years

Storage Needs Continue to Ramp

- Consumers expect to connect AND carry mobile devices
- 50MM+ iPods with 4GB+ storage in use since 9/05 launch (K. Huberty)
- 7MM+ mobile phones with 1GB+ storage, up 2-3x Y/Y (A. Ahmad)
- High definition content presents next major step-up in storage capacity requirements – ~40x more bandwidth required to stream DVD-quality movie than mp3 file (K. Huberty)



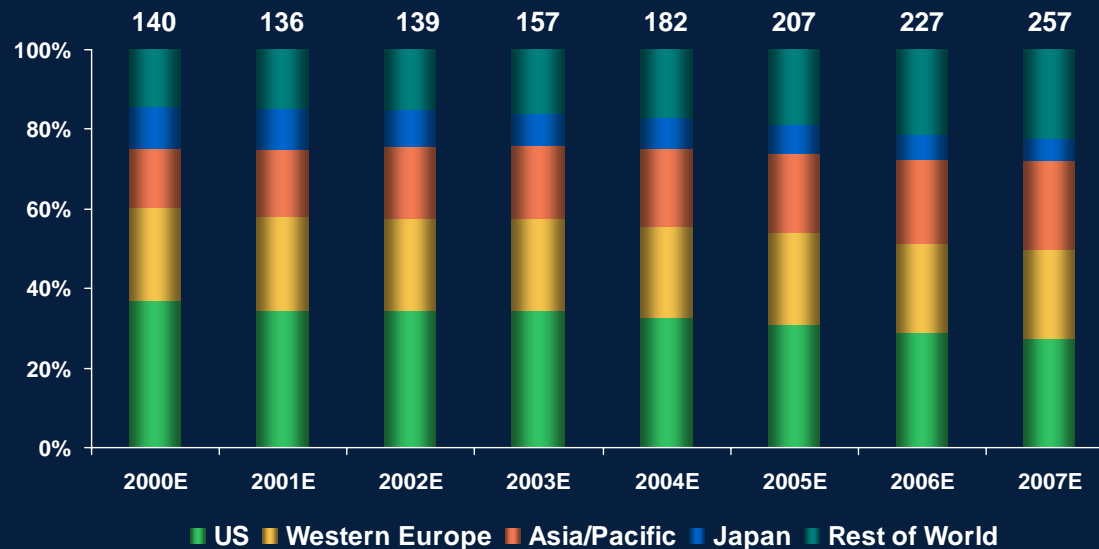
Data Center Growth is Robust

- As users integrate digital technology into daily lives, number of access points increases as does importance of reliability + speed - IT effectiveness increasingly becomes competitive weapon
- New compute / storage architectures emerging quickly – virtualization + data duplication + thin computing...
- Google - cumulative capex = \$4.5B @ 21% of Q2 net revenue
- VMWare - 90% Y/Y revenue growth in CQ2

Emerging Markets Pacing Next Wave of Tech Adoption

- **Non-US PC units** = 70%+ of global market, grew 5x US rate in C2006 (K. Huberty)
- **Non-US Internet users** = 86% of global users – China + India + LatAm + ROW (38% of total) growing at 30% vs. 3% in US (14% of total), C2007E
- **Non-US mobile users** = 92%+ of global users – China + India + LatAm + ROW (43% of total) growing at 30% vs. 11% in US (8% of total), CQ2:07E (Informa)

Global PC Shipment Units (MM)



TMT Update = China / India / Russia / Brazil Gaining Ground

| 2004 | | | 2006 | | |
|------|----------|--------------------|------|---------|--------------------|
| Rank | Country | Relative Weighting | Rank | Country | Relative Weighting |
| 1 | USA | 9.0 | 1 | USA | 8.7 |
| 2 | China | 8.2 | 2 | China | 8.7 |
| 3 | Japan | 6.5 | 3 | Japan | 6.3 |
| 4 | Germany | 5.7 | 4 | Germany | 5.7 |
| 5 | UK | 5.5 | 5 | India | 5.5 |
| 6 | India | 5.3 | 6 | UK | 5.4 |
| 7 | France | 5.2 | 7 | France | 5.3 |
| 8 | Italy | 5.2 | 8 | Brazil | 5.3 |
| 9 | S. Korea | 5.1 | 9 | Russia | 5.3 |
| 10 | Canada | 5.1 | 10 | Italy | 5.2 |

From our database on market sizing of global TMT (Technology, Media & Telecommunications) products and services. We measure market sizes and growth rates for core TMT metrics: nominal GDP per capita (current USD); telephone lines; cable subscribers; installed PCs; mobile phones in use; Internet users and credit/debit cards in use. For each economy, we calculate past / present / potential global market weightings across seven TMT metrics - we call this our relative weighting and we use it to measure / rank a country's propensity for TMT products and services. We standardized each country's position in the global market in each category and adjusted the values to reflect a positive scale. The relative ratings and ranks were determined by calculating an average of z-scores across categories. For example, in the United States in 2004, standardized and adjusted values of 6.4 in GDP per capita, 8.4 in telephone lines, 11.3 in installed PCs, 7.6 in mobile subscribers, 8.9 in cable subscribers, 10.7 in Internet users, and 9.6 in credit/debit cards produces a relative weighting of 9.0. 2010E relative weightings derived by assuming 2003-2004 growth CAGR for each category to 2010, and ensuring category penetrations were not exceeded.

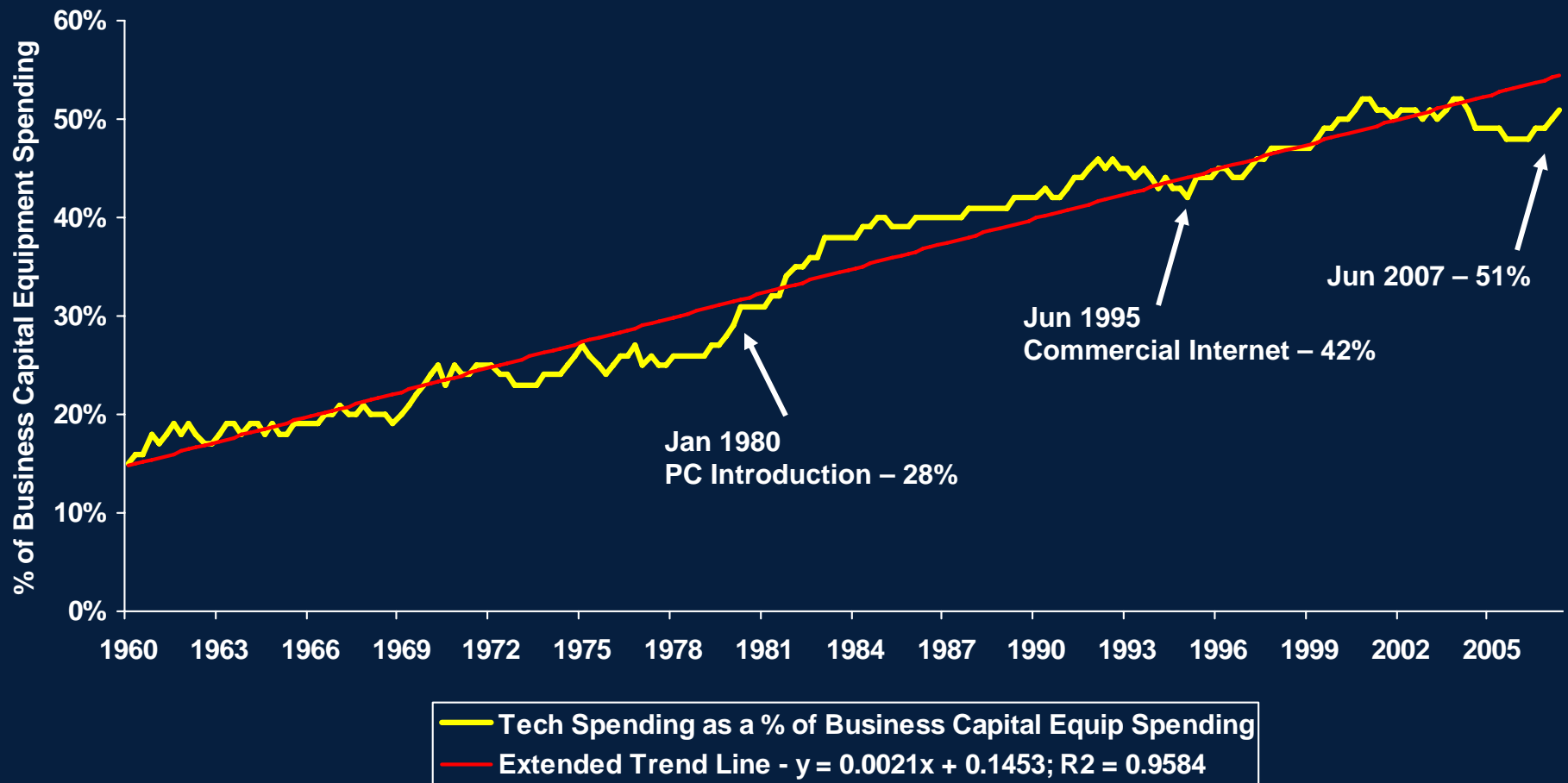
*Note: Red indicates countries moving out of the top 10 TMT countries; Green indicates countries moving into the top 10 and highlights China / India
Source: Morgan Stanley Research*

Web 2.0 Driving Enterprise Growth?

- Next wave of corporate productivity gains should be paced by Web 2.0 driven collaboration tools that use the network as the platform to enable users to connect 'any device to any content over any combination of networks' (John Chambers, CEO, Cisco Systems, 5/22/07)

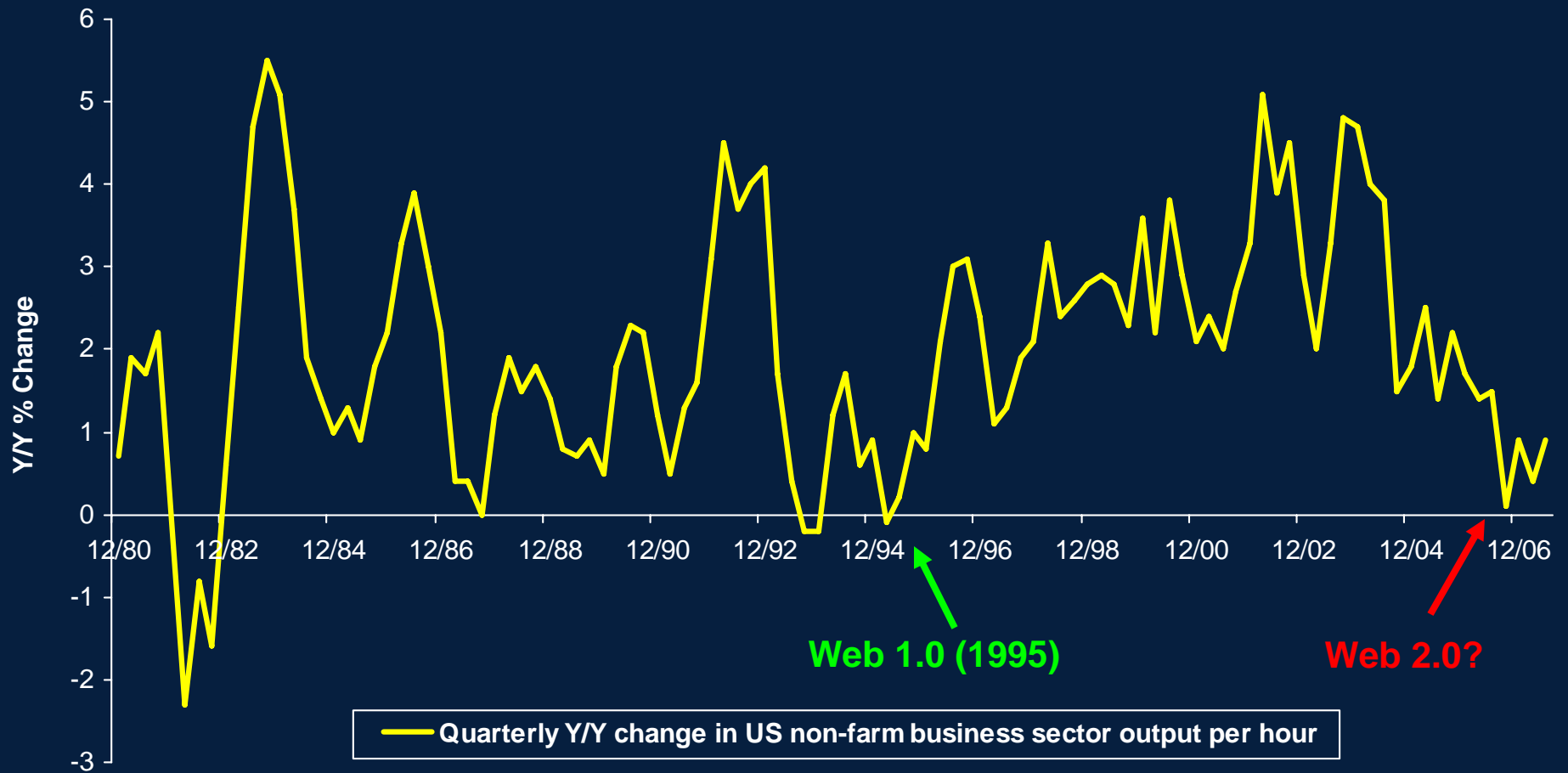
Enterprises May be Coming Out of Relative Purchasing Funk

US-based IT as % of Nominal Business Capital Equipment Spending



US Productivity on Rise à la 1995?

While US non-farm productivity grew nicely from C1995-C2003, rates of growth have waned in recent years but have moved up in last 2 quarters

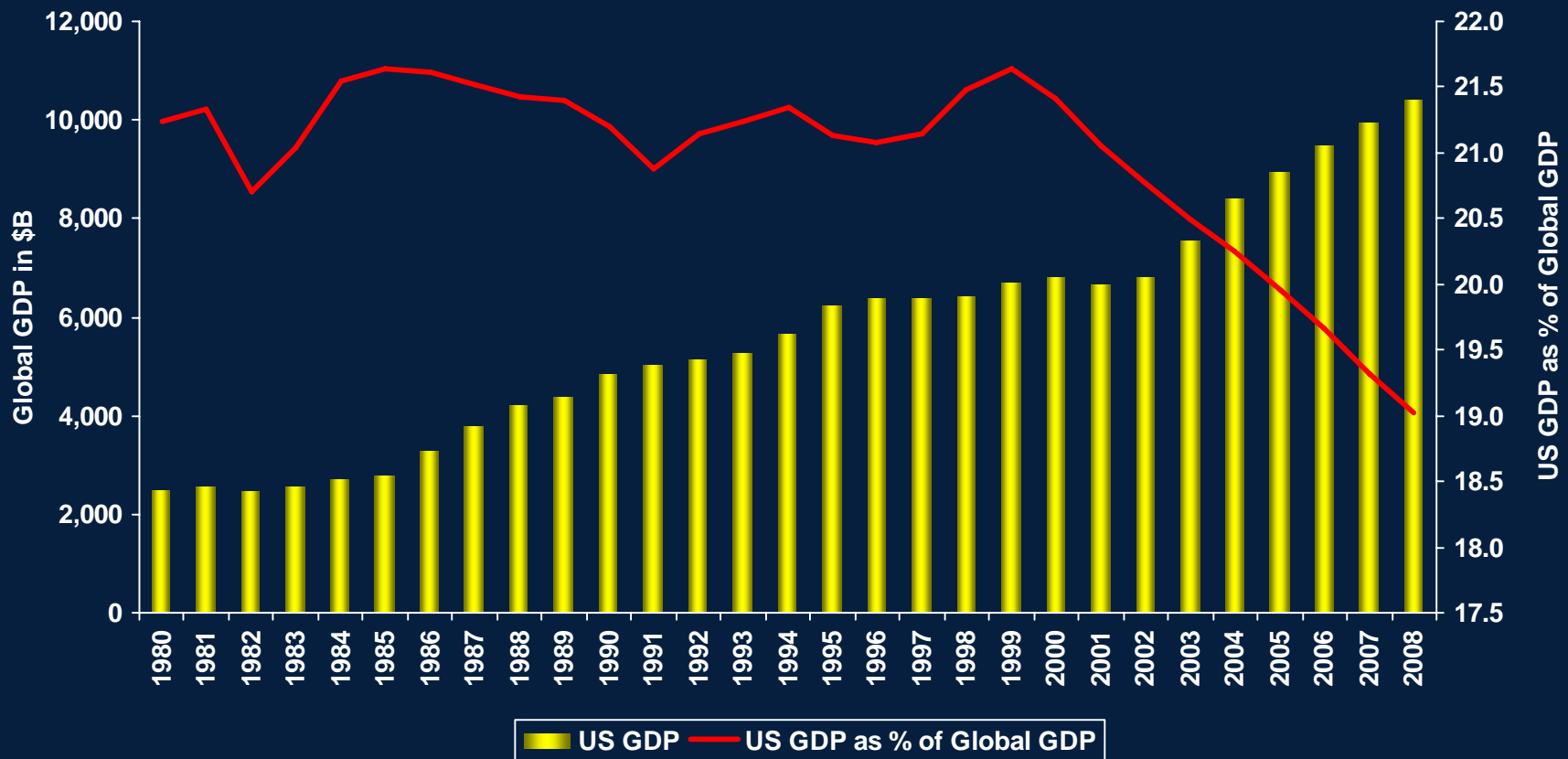


Recession(s) = Very Serious Potential Challenge...

- Impact of US subprime woes should not be underestimated
- Average GDP growth rate forecasts for C2008E have already fallen to 2.0% (from 3.0%) over 4 months – a 33% reduction in rate of growth. Average annual GDP growth over past decade = 3.1%
- US less relevant to global economy - US share of global GDP has declined steadily since 1999 to 19% of GDP

...Recession(s) = Very Serious Potential Challenge

US GDP Declining as % of Global GDP



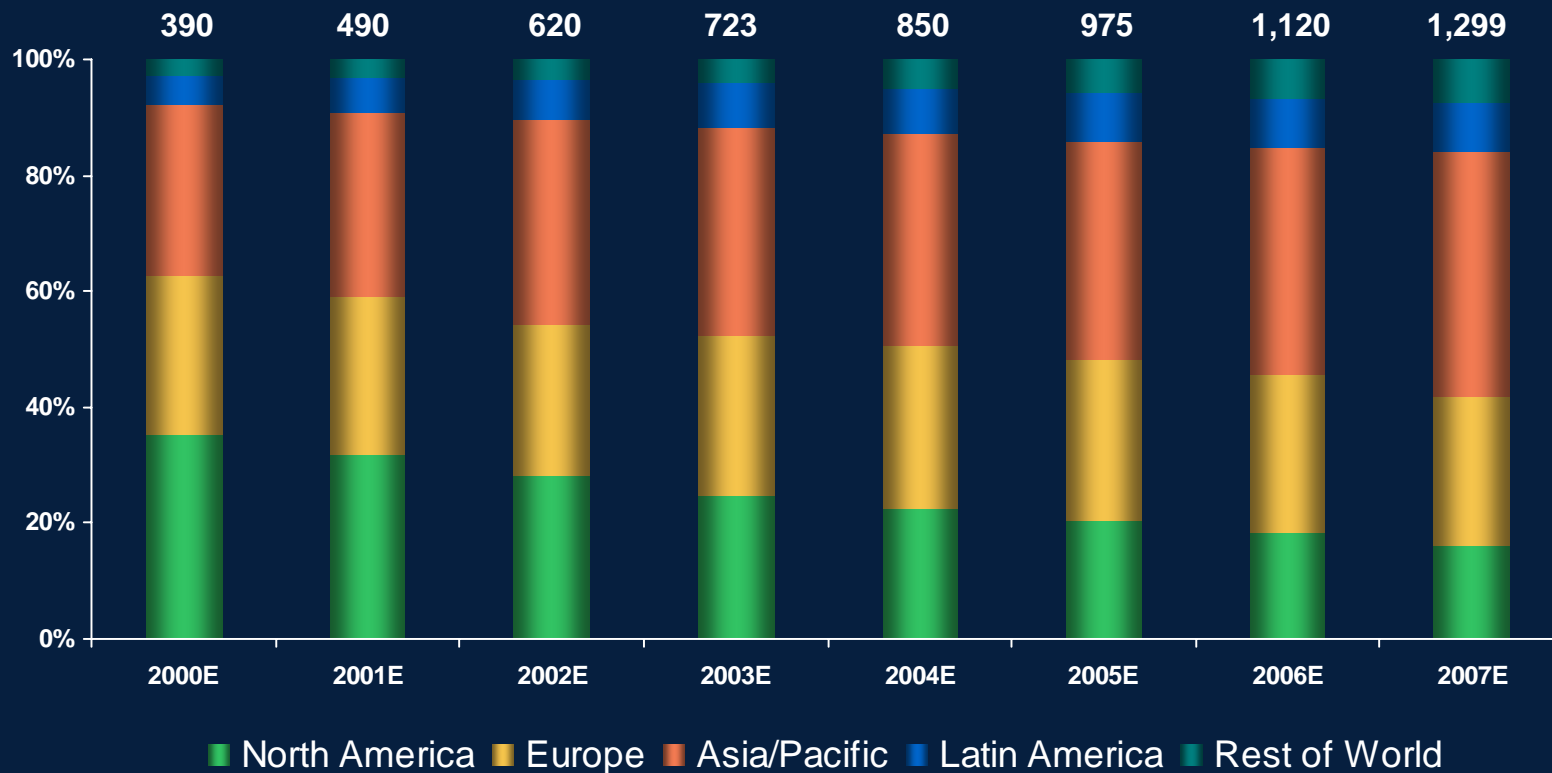
Internet Trends

- Strong Internet user growth – fastest in non-US markets
- Strong broadband growth – with more upside
- Search continues to improve as content access tool
- Ongoing share gains to online from offline – large markets to tap
- Turf wars increasing – core / emerging businesses + M&A
- High level Web 2.0 trends are compelling
- Software as a service (SaaS) momentum = strong + broad-based
- Emerging Internet-enabled devices gaining traction

Internet User Growth +16% Y/Y in C2007E – Asia! - Now 42% of Users - 30% in 2000E

Asia (547MM users, +24% Y/Y); Europe (336MM, +10%); N. America (211MM, +3%); LatAm (110MM, +17%); ROW (95MM, +27%)

Geographic Distribution of Internet Users (MM)

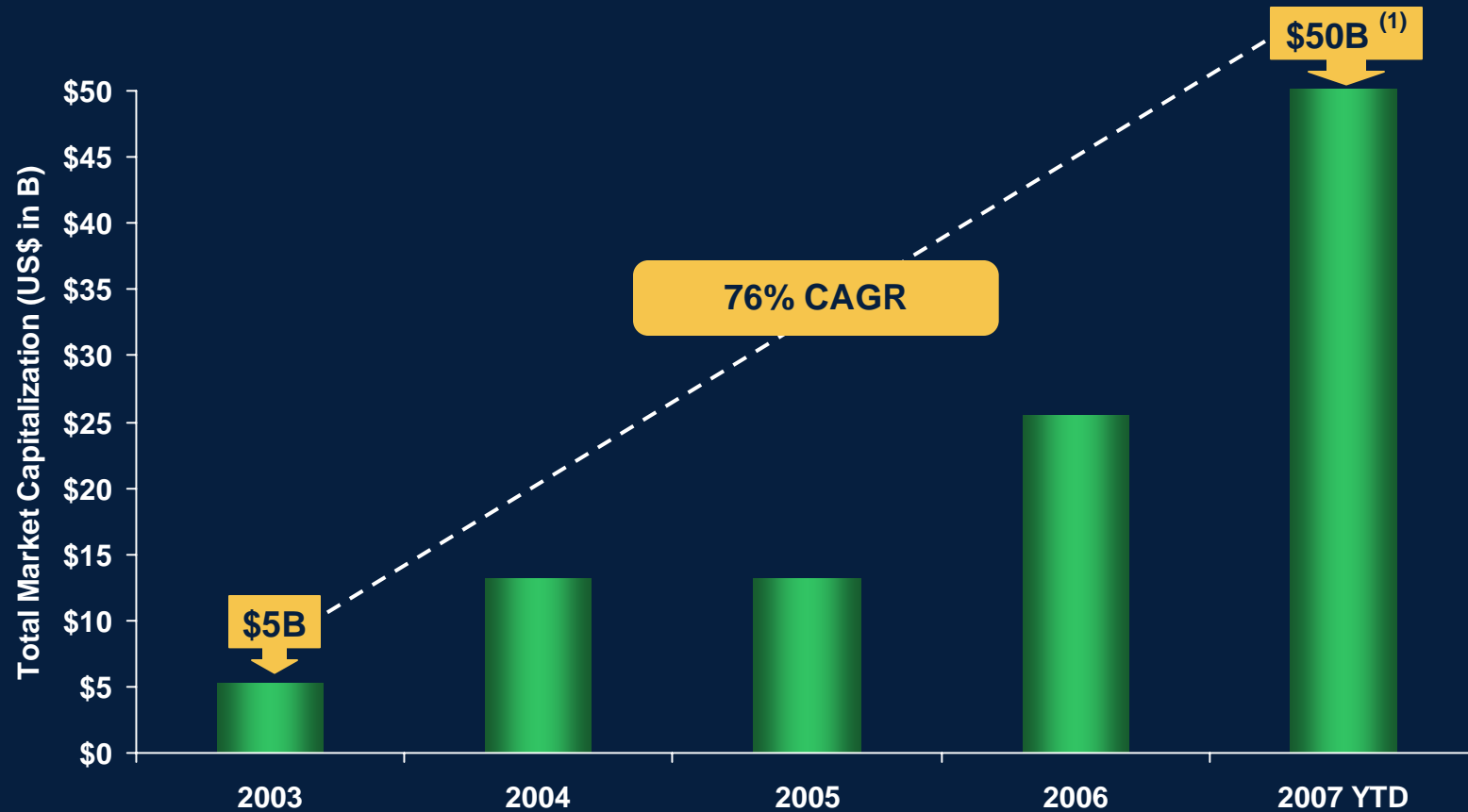


Non-US Markets Lead Usage Penetration in Many Categories



China – Internet Market Capitalization - 76% CAGR over 4 Years

China public Internet company market capitalization (US\$ in B)



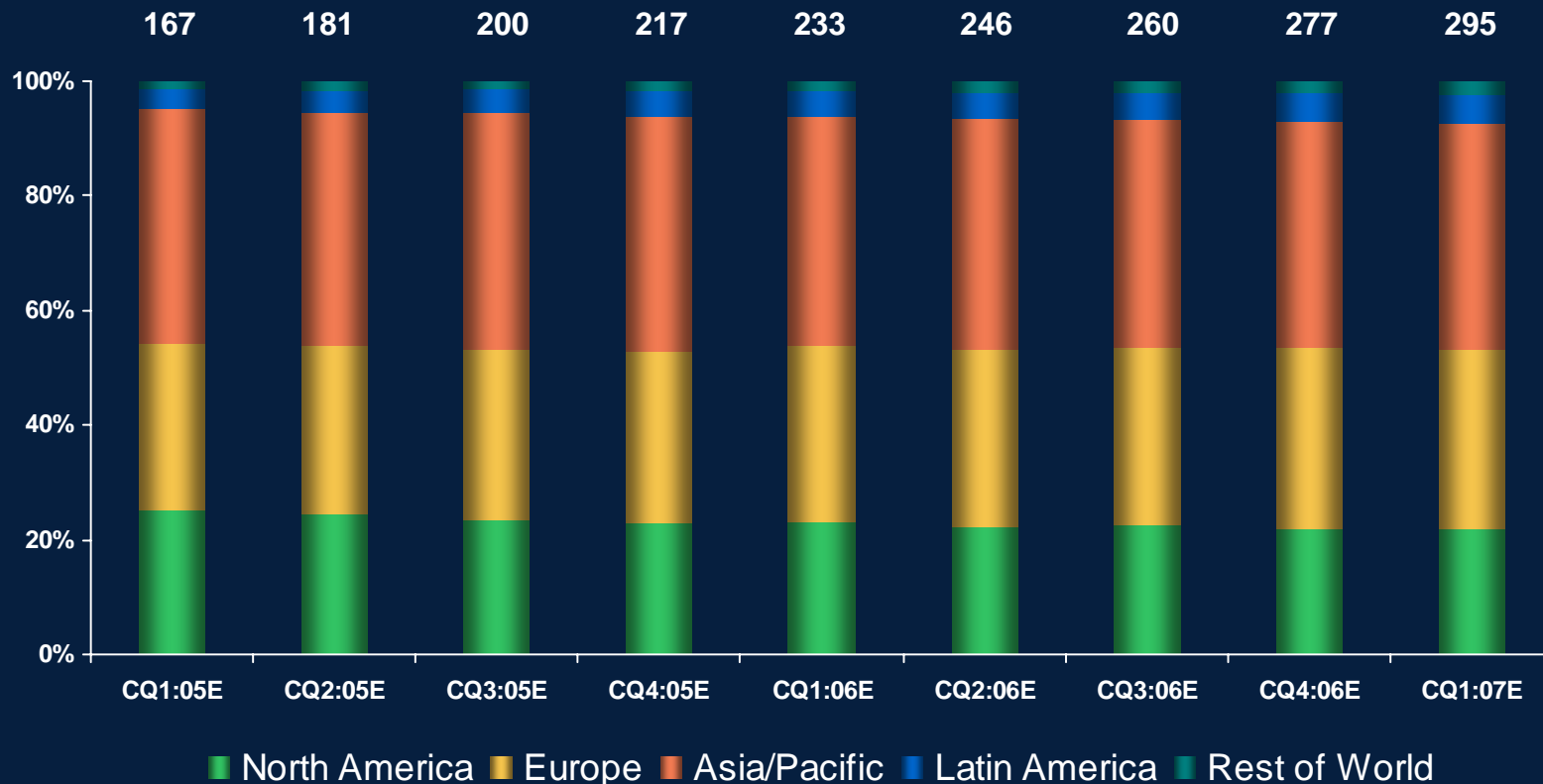
Includes: Sina, NetEase, Sohu, Ctrip, Shanda, 51job, Tencent, Tom Online, Baidu, China Digital TV, Perfect World, CDC Corp, The9, eLong, Kongzhong, China Finance Online, Linktone, Hurray!, New Oriental Education, Home Inns, Netsun, Xinhua Finance Media, Acorn, and Kingsoft

(1) Market Capitalization as of 10/15/2007
Source: Morgan Stanley Research

Broadband +28% in C2007E to 17% of WW Households vs. 53% of Households with 1+ Telephone

Asia (116MM BB subs, +24% Y/Y, CQ1E); Europe (92MM, +29%);
 N. America (64MM, +20%); LatAm (15MM, +50%); ROW (7MM, +68%)

Geographic Distribution of Broadband Subscribers (MM)



Search Impact – Still Early Stage & 70% Y/Y Google Query Growth (CQ2)



Personalization + Targeting Continue to Improve – Amazon.com’s Revenue per Customer Growth Accelerating

Amazon.com recommendation engine:
Leveraging data

Google ads:
Improvements in relevance

Customers who bought this item also bought

[Santa Barbara Style](#) by Kathryn Masson

[Insiders' Guide to Santa Barbara, 3rd: Including Channel Islands National Park](#)

Editorial Reviews

Book Description
Experience one of the gl... ia. SA...

Customer Reviews

Average Customer Review: ★★★★★

1 of 1 people found the following review

★★★★★ **Beautiful book!**, February 2, ...

By [Jessica M. Carter](#) (Newport Beach, CA) - [See all my reviews](#)

What other customers are thinking

What other customers are buying

What other customers are doing

What do customers ultimately buy after viewing this item?

47% buy the item featured on this page: [Santa Barbara](#) by [Barnaby Conrad](#)

Customer Discussions Beta (What's this?)

New! Receive e-mail when new posts are made. Click the "Track i... sion p...

Ask questions, Share opinions, Gain insight

Sponsored Links

Santa Barbara Hotel
Find Great Deals & Exclusive ORBITZ Rates at Leading Hotels in Italy
[www.ORBITZ.com](#)

Santa Barbara Hotel
Get a Great Deal On Your Hotel By Comparing Multiple Web sites!
[www.travelzoo.com](#)

Santa Barbara Hotel
Photos, Reviews, and More Great Rates from Hotels.com
[www.Hotels.com](#)

Fine Santa Barbara Hotels
Located where you want to be: Downtown, beaches, harbor, Mission
[www.sbhoteles.com](#)

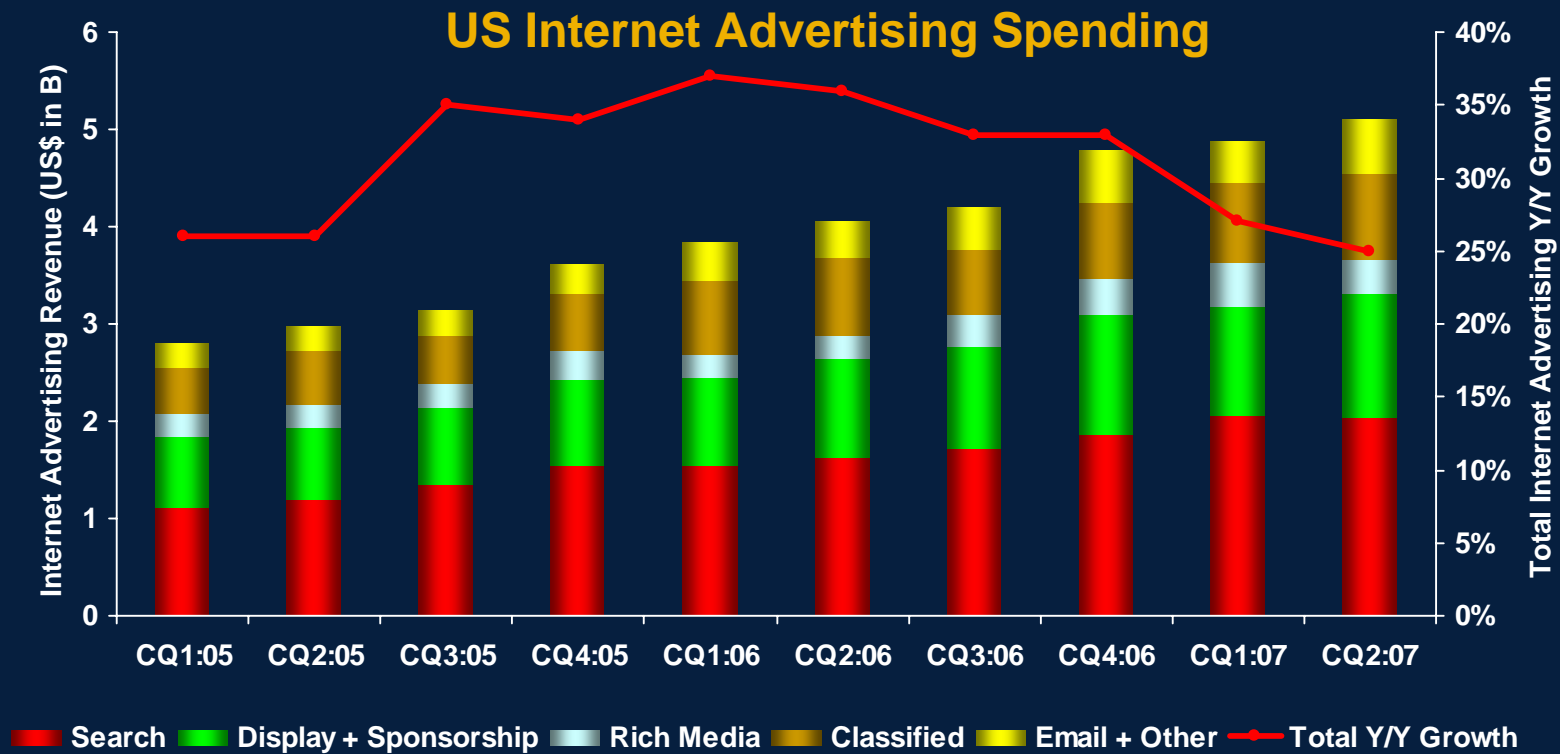
Santa Barbara Beach Hotel
Beachside Inn **Santa Barbara** Unbeatable Location..New Decor
[www.BeachsidelnnSantaBarbara.com](#)

Santa Barbara Hotels
Travelocity offers great deals & low prices on thousands of hotels.
[www.Travelocity.com](#)

Online Advertising – +26% Y/Y in C2007E – Only 10% of Total

Global Ad Spending = \$630B in C2007E, +4% Y/Y

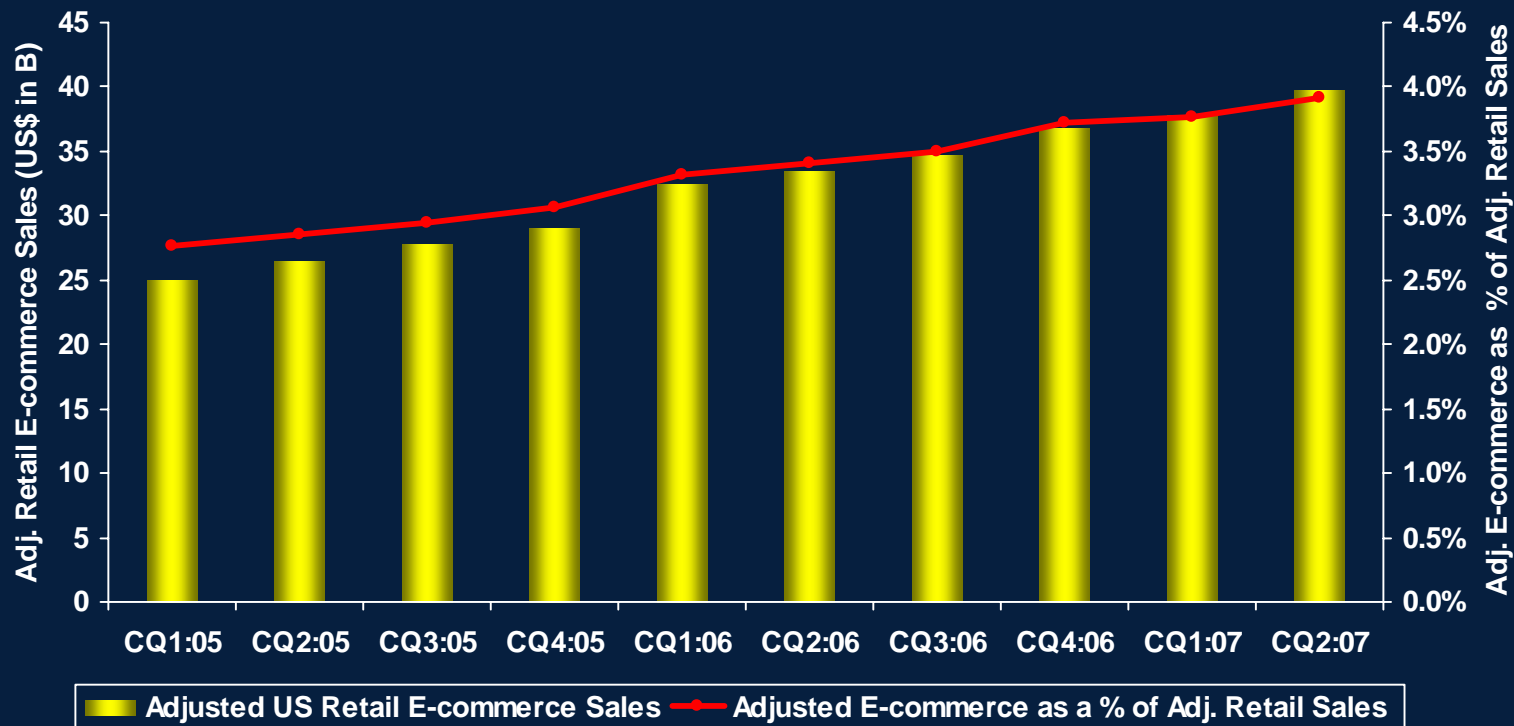
- 10% of US advertising online (\$21B) in C2007E vs. 4% in C2002 and 17% in C2012E
- US online advertising +26% Y/Y growth vs. industry growth of +4% in C2007E



Online Commerce – +19% Y/Y in CQ2 – 4% of Total

US Total Retail Sales = \$3.9T in C2006, +6% Y/Y

US E-Commerce Sales / Penetration



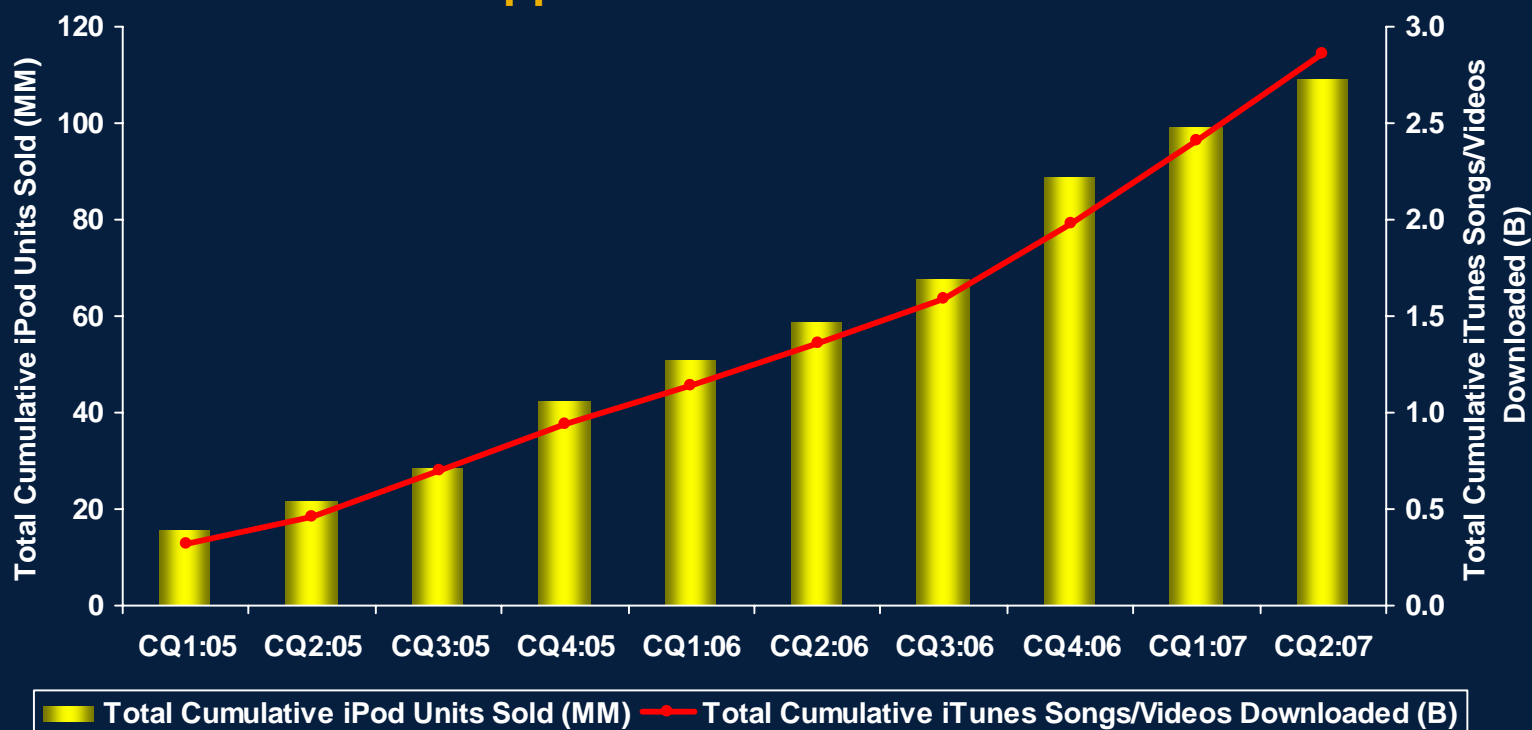
Note: Total Retail does not include travel, financial services, or event ticket sales. E-commerce sales are goods and services where an order is placed by the buyer or price and terms of sale are negotiated over an Internet, extranet, EDI network, e-mail, or other online system. Payment may or may not be made online. Adjusted by adding eBay US Gross Merchandise Volume (GMV) and subtracting eBay US Transaction Revenue.

Online Music – +107% Y/Y in C2006 - 11% of Total

Global Total Music Sales = \$20B in C2006, -6% Y/Y

- 109MM cumulative iPods sold (+86% Y/Y, CQ2); 2.9B cumulative iTunes songs / videos downloaded (+110% Y/Y, CQ2E)

Apple iPod / iTunes Growth



Online Video – YouTube Growth Speaks for Itself

Global broadcasting + cable TV revenue = \$284B in C2007E, +5% Y/Y

- YouTube - 206MM unique global visitors, +185% Y/Y, 21B minutes, +332% Y/Y; other video distribution models: veoh, Joost, Sling Media, VUDU...

YouTube Global Traffic

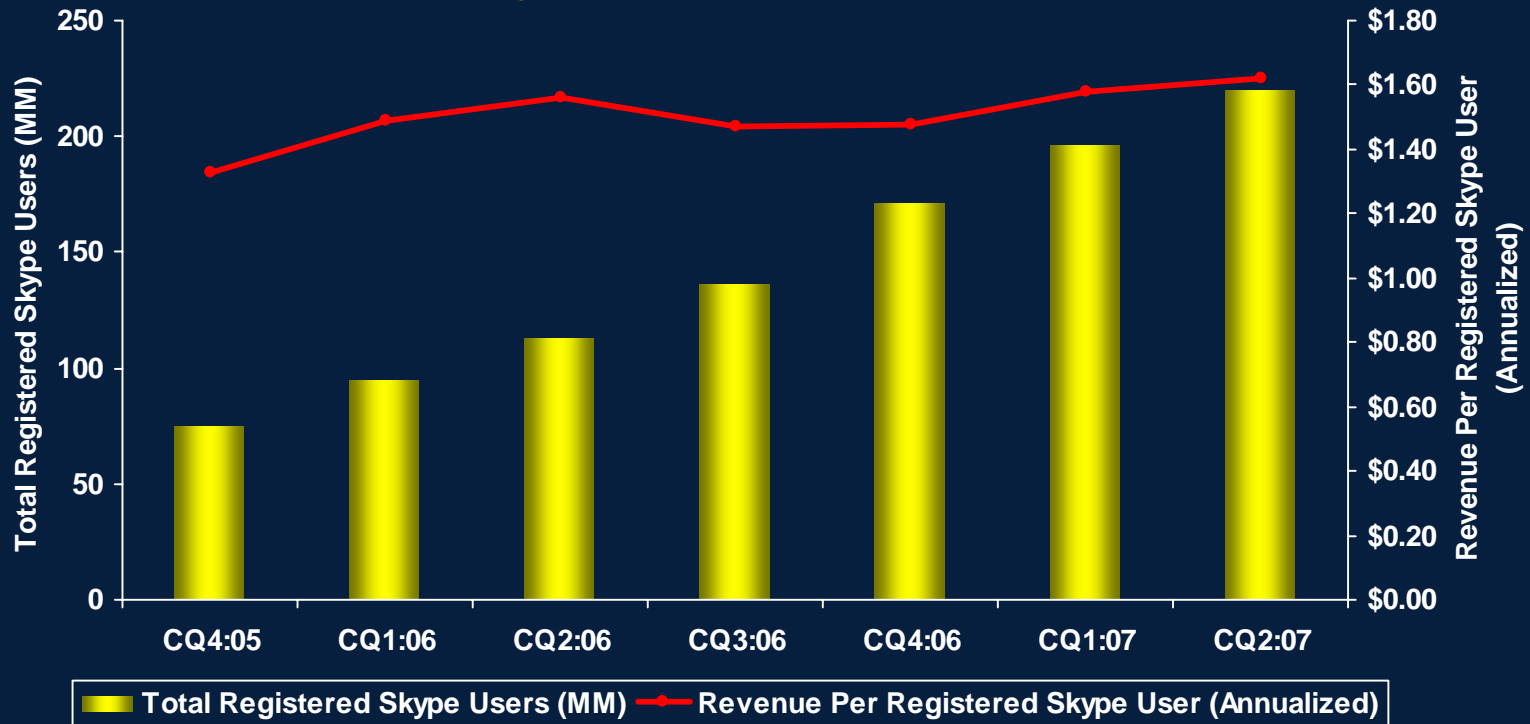


VoIP –

Skype Growth +94% Y/Y to 220MM Users (CQ2) –
 ~7% of Wireless Users / ~5% of Wireline Users

Global Telecom Services Revenue of \$1.5T in C2007E, +8% Y/Y

Skype Users / Monetization



Turf Wars Increasing - Battles for Platforms

- **Advertising** – Google vs. Yahoo! vs. Microsoft vs. attackers (exchanges / networks, performance-based vs. CPM, behavioral vs. contextual, ‘social graph,’ tools - widgets...)
- **Commerce** – Amazon.com vs. eBay vs. Wal-Mart vs. attackers
- **Payments** – PayPal vs. Amazon.com vs. Google vs. mobile
- **Social Networks** – Facebook vs. MySpace vs. Yahoo! vs. Google / Orkut vs. Skype vs. attackers
- **‘Traffic’** - As monetization tools improve, value of good traffic should rise
- **Mobile Devices** – Rugby scrum?

Strong Web 2.0 Metrics – The Times They are a-Changin’ – Hello Social Networking

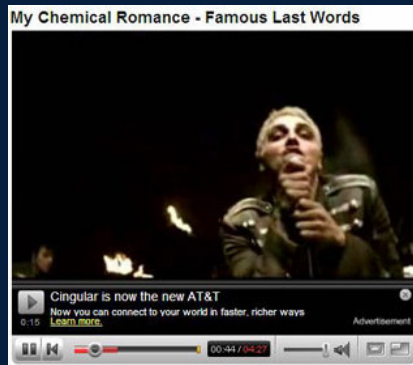
Alexa Global Traffic Rankings

| 2005 ⁽¹⁾ | | 2007 ⁽²⁾ | |
|---------------------|---------------|---------------------|---------------|
| Rank | Web site | Rank | Web site |
| 1 | yahoo.com | 1 | yahoo.com |
| 2 | msn.com | 2 | google.com |
| 3 | google.com | 3 | msn.com |
| 4 | ebay.com | 4 | youtube.com |
| 5 | amazon.com | 5 | live.com |
| 6 | microsoft.com | 6 | myspace.com |
| 7 | myspace.com | 7 | facebook.com |
| 8 | google.co.uk | 8 | orkut.com |
| 9 | aol.com | 9 | wikipedia.org |
| 10 | go.com | 10 | hi5.com |

Traffic rank is based on three months of aggregated historical traffic data from Alexa Toolbar users and is a combined measure of page views / users (geometric mean of the two quantities averaged over time).

YouTube

- 206MM unique global visitors +185% Y/Y, 21B minutes +332% Y/Y (comScore 8/07)
- Added additional site features to encourage community + increase accessibility - users can post video 'responses,' subscribe to video content feeds, edit videos online, watch via mobile device
- Partnered with media content providers including Warner Music, CBS, Universal Music, Sony BMG, NBC + launched YouTube Partnership program with popular YouTube uploaders such as 'lonelygirl15'
- Expanding YouTube videos within Google network - 100 media companies in AdSense network running YouTube videos with text / graphical ads to match website content
- InVideo Ads: 50 partners will run ads at the bottom 20% of YouTube videos, appearing 15 seconds into the spot



Morgan Stanley

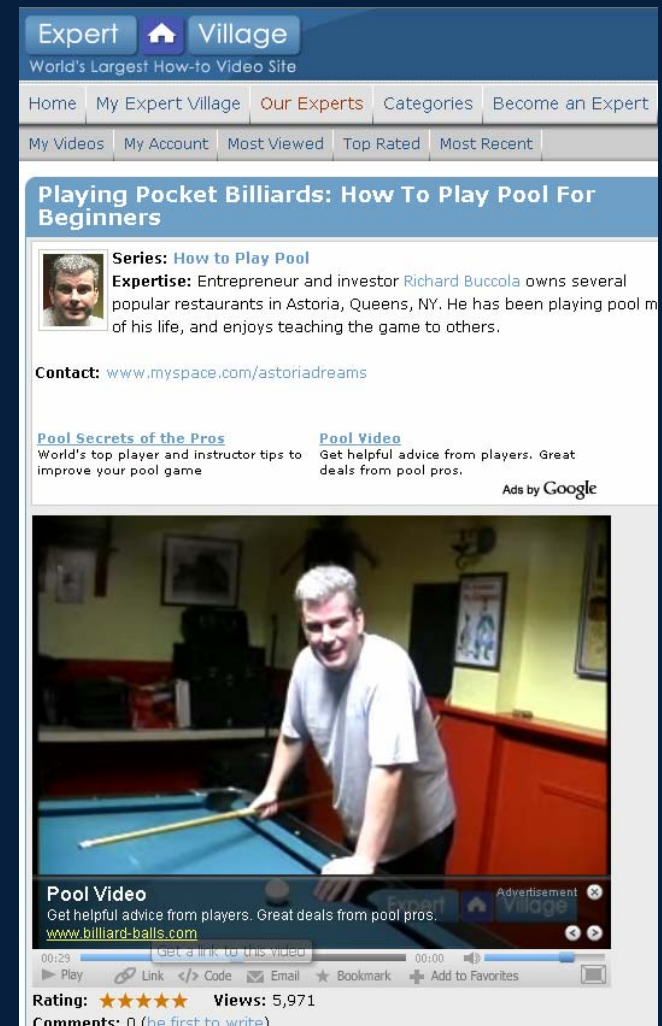
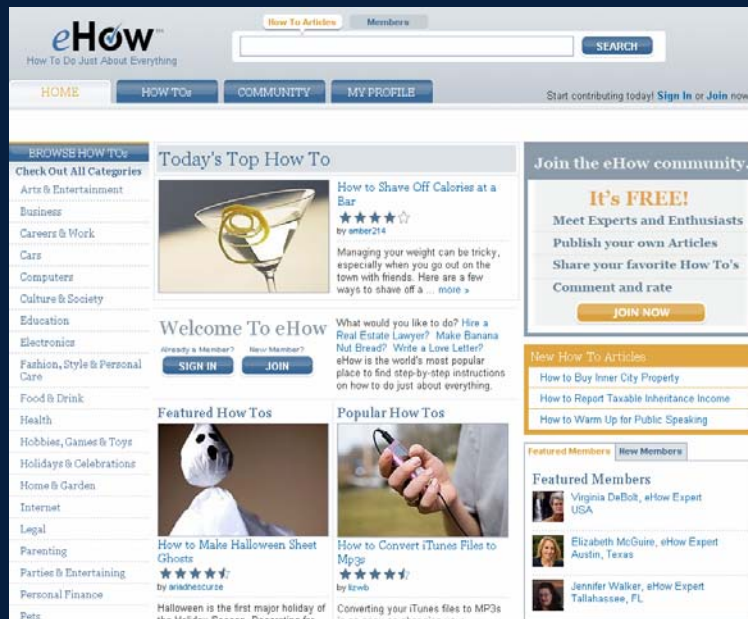
Wikipedia

- 211MM unique visitors, +52% Y/Y, 3B minutes, +92% Y/Y (comScore, 8/07)
- 8.3MM+ total articles (9/07), mainly from 75K+ active contributors, in 250+ languages with 2.0MM+ articles in English, 649K+ in German, 149K+ articles in Chinese
- Go back 20 years – imagine what the cost would have been to compile the data / info that exists (for free) on Wikipedia!

The screenshot shows the Wikipedia article for "Web 2.0" from August 2007. The page features the standard Wikipedia layout with a navigation sidebar on the left, a main content area, and a search bar. The article text discusses the concept of Web 2.0, its origins, and its impact on the internet. It mentions the first O'Reilly Media Web 2.0 conference in 2004 and quotes Stephen Fry describing it as "an idea in people's heads rather than a reality." The article also notes that Web 2.0 includes a social element where users generate and distribute content, often with freedom to share and re-use. The page includes a table of contents, a search box, and various navigation links.

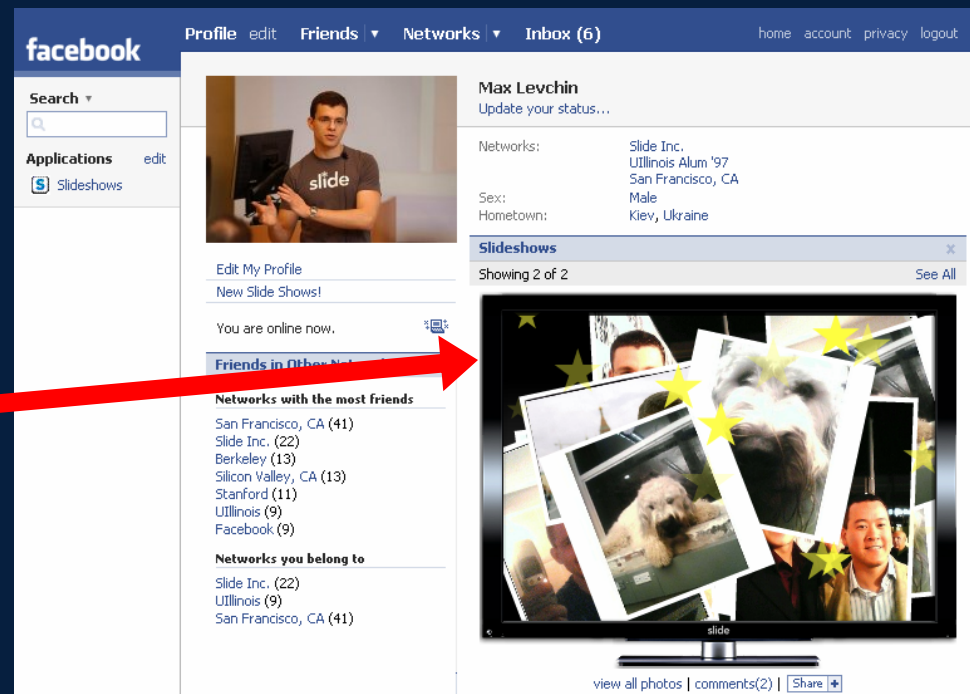
Demand | MEDIA

- 25MM unique visitors, +109% YTD, 429MM minutes, +316% YTD (comScore, 8/07)
- Assets include eNom, eHow, Expert Village, golf link, trails.com...
- Allows users to create / distribute / monetize content via 'social media creation platform' + owned verticals / domain names / SEO + Google AdSense. Income deposited in PayPal account
- Creates easy-to-use outlet for 'ProAm' content creators



Slide

- 134MM unique viewers (6/07) with 30% reach in US (comScore, 6/07)
- 45MM+ applications and 5MM+ active users
- Allows users to create custom photo slide shows with images / animations; 1MM new flash widgets added to network each day – advertisers include AT&T Wireless, Activision, Paramount Pictures, Discovery Channel, Lionsgate Films



Digg

- 10MM unique visitors, +252% Y/Y, 18MM minutes, +230% Y/Y (comScore, 8/07)
- User-driven editorial / selection of content (news, videos, images, etc.) through sharing / discovery / democratization – compare to traditional media determining front-page / lead stories
- Site enhancements coming in C2007 include revamped user profiles / dedicated images section / customized alerts / story suggestions (recommendation engine)

The screenshot shows the Digg website interface. At the top, there's a navigation bar with 'digg' logo, 'Join Digg', 'About', and 'Login'. A search bar is on the right. Below is a category menu with 'All', 'News', 'Videos', 'Podcasts', and 'Customize'. A secondary menu shows 'Technology' with sub-categories like 'Apple', 'Design', 'Gadgets', 'Hardware', 'Industry News', 'Linux/Unix', 'Microsoft', 'Mods', 'Programming', 'Security', 'Software', and 'Tech Deals'. The main content area is titled 'Tech Industry News' and features a list of articles:

- Facebook founder named most influential person in tech industry** (562 diggs) - silicon.com — Facebook founder Mark Zuckerberg has today been named the most influential person in the high-tech industry by a panel of experts in the eighth annual Agenda Setter's poll by silicon.com. The Agenda Setters Top 50 focuses on the people driving and shaping the tech industry in 2007 and is a barometer of success within the IT industry. [More...](#) (Tech Industry News) 110 Comments Share Bury HollowMarkED — made popular 8 hr 26 min ago
- HowStuffWorks Acquired by Discovery for \$250M** (1163 diggs) - mashable.com — HowStuffWorks is the latest acquisition by Discovery Communications, for \$250 million. While the map database doesn't seem to be figured into the overall price of this particular acquisition, as it's not yet profitable, this is Discovery's largest online acquisition. [More...](#) (Tech Industry News) 71 Comments Share Bury FameMoney — made popular 10 hr 56 min ago
- How does Google Map the World?** (825 diggs) - technologyreview.com — We interviewed engineers at Google and at DigitalGlobe, the company that supplies Google's satellite photos, and did a little bit of reverse-engineering to figure out how it works. [More...](#) (Tech Industry News) 37 Comments Share Bury verge — made popular 13 hr 22 min ago

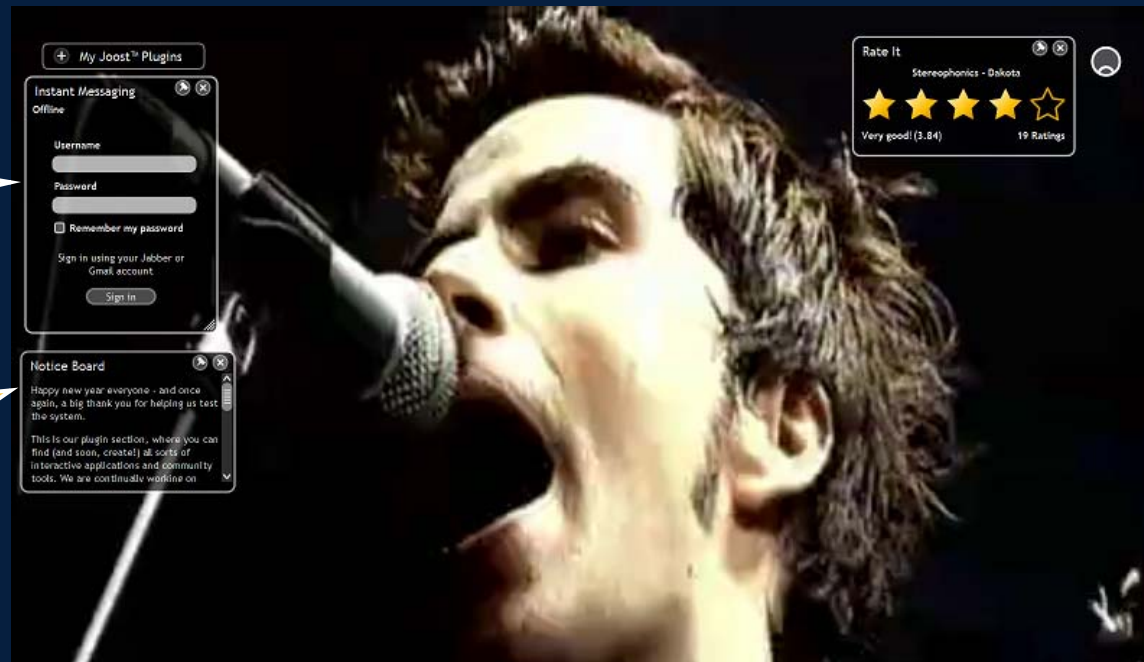
On the right sidebar, there's an 'IBM {resource center}' section powered by Digg technology. It promotes 'Energy Efficiency Self-Assessment Tool' and a 'Whitepaper: "Beyond Disaster Recovery"'. Below this is a section titled 'Integrating with Digg' which states: 'IBM has tied into the [Digg API](#) to create a site where you can discover great IBM resources for IT pros. Check out the [IBM Resource Center](#). new!'

Joost

- 1MM+ beta users while still invite-only; beta launched to public – 10/1
- Streams on-demand TV / video content to the PC – users can also chat with other users watching same program
- 15K+ shows, 250+ channels, including Viacom, CBS, Warner Music
- 30+ advertisers include Coca-Cola, HP, Procter & Gamble, L'Oreal

IM / Chat
functionality

Add
interactive
apps /
plugins

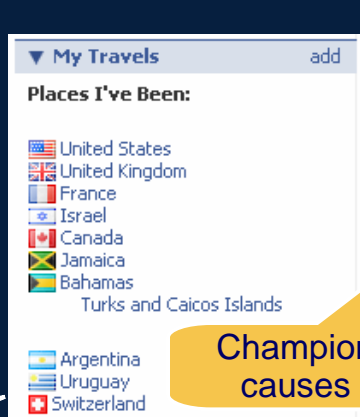


Rate
watched
content

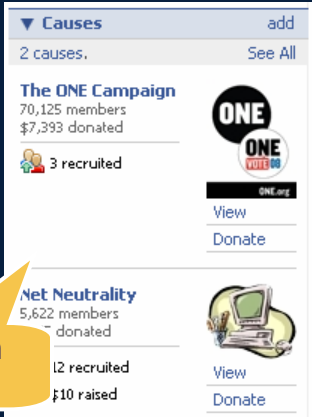
Facebook

- Accelerating Y/Y growth with 69MM visitors +348% Y/Y, 15B minutes, +631% Y/Y (comScore, 8/07)
- #7 in global minutes (and rising) behind Yahoo!, MSN, Hotmail, YouTube, MySpace, Google (comScore, 8/07)
- Self-controlled, flexible yet standardized social network seems to have the right formula for success at the right time
- Profiles yesterday...personalized home page today...mobile digital presence tomorrow?
- Mesh of communications + media
- 6K applications, 392MM installations, 29MM usages per day since APIs opened 5 months ago – may be unprecedented ramp (adonomics.com 10/07)
- Platform for applications - Top 3rd party apps largely from new companies - 'Top Friends' = 19MM users (16% active); 'Video' = 12MM (9% active); 'Super Wall' - 12MM (12% active) (adonomics.com 10/07)
- Opportunity to leverage social graph data to improve user experience (like Amazon.com recommendation engine, etc) + drive user satisfaction and improve monetization may prove compelling
- 192 sponsored groups - Apple = 422K members; Victoria's Secret = 348K; NBA = 115K members (Facebook 10/15)

Chart your travels



Champion causes



Tout music picks



Express yourself through graffiti



SaaS Momentum = Strong + Broad-Based

- **Customer Acquisition** – Google ads
- **Commerce** – Amazon.com, eBay, Blue Nile, Zappos, CafePress, HomeAway, OpenTable, smarter.com, Zillow
- **Payments** – PayPal, Bill Me Later
- **VoIP** – Skype
- **Customer Management** – salesforce.com, RightNow
- **Life Management** – MySpace, Facebook, orkut, hi5, Bebo, Cyworld, Skyrock
- **Information Management** – Wikipedia, Endeca
- **Content Management** – iTunes, YouTube, Yahoo! My Yahoo!, Facebook News Feed, iGoogle, veoh
- **Content Distribution** – Adobe, demand | MEDIA
- **Human Resources** – Taleo, Kanexa, Success Factors, WorkDay
- **Resource Management** – NetSuite, Intuit
- **Web Analytics** – Omniture, Visual Sciences, WebTrends, CoreMetrics
- **Merchandise / Marketing** – DemandTec, Aprimo

Emerging Internet-Enabled Devices Gaining Traction

- **Nintendo Wii** – 9.3MM consoles since 11/06 launch – raised bar with motion sensors + playability (Nintendo, CQ2)
- **Microsoft Xbox Live** – ~8MM members since 11/02 launch – raised bar with online playability
- **Apple iPhone** – 1MM units in < 3 months vs. ~2 years for 1MM iPods - raised bar with ease-of-use + functionality
- **3 Skype Phone** – Opportunity to leverage large / active Skype user base + create a true web-enabled VoIP, social networking, digital presence phone is compelling
- **Amazon Kindle** – Wireless book / data downloading – Amazon has loyal / active base of book lovers – we know what Apple did with tunes, could Amazon do same with books?
- **Google 'GPhone'** – Could the price be right with assist from ads?

2% of Public Tech Companies Create 100% of Wealth* – A Look at Some of Biggest Winners of Our Day

| | Huge Market | Simple, Focused Mission | Active, Missionary Founders | Great Management Team, Culture | Constant Improvement | Insane Customer Focus | Big Gross Margin ⁽¹⁾ | Annuity -Like Model | Strong Board |
|-----------|-------------|-------------------------|-----------------------------|--------------------------------|----------------------|-----------------------|---------------------------------|---------------------|--------------|
| Apple | X | X | X | X | XX | X | 33 | X | X |
| Cisco | X | X | O | X | X | X | 65 | X | X |
| Dell | X | X | X | X | X | X | 19 | X | X |
| eBay | X | X | X | X | X | X | 79 | X | X |
| Google | XX | XX | X | X | X | X | 85 | X | X |
| Intel | X | X | X | X | X | X | 53 | X | X |
| Microsoft | X | X | X | X | X | X | 82 | XX | X |
| Yahoo! | X | X | X | X | X | X | 81 | X | X |

Summary

www.morganstanley.com/techresearch

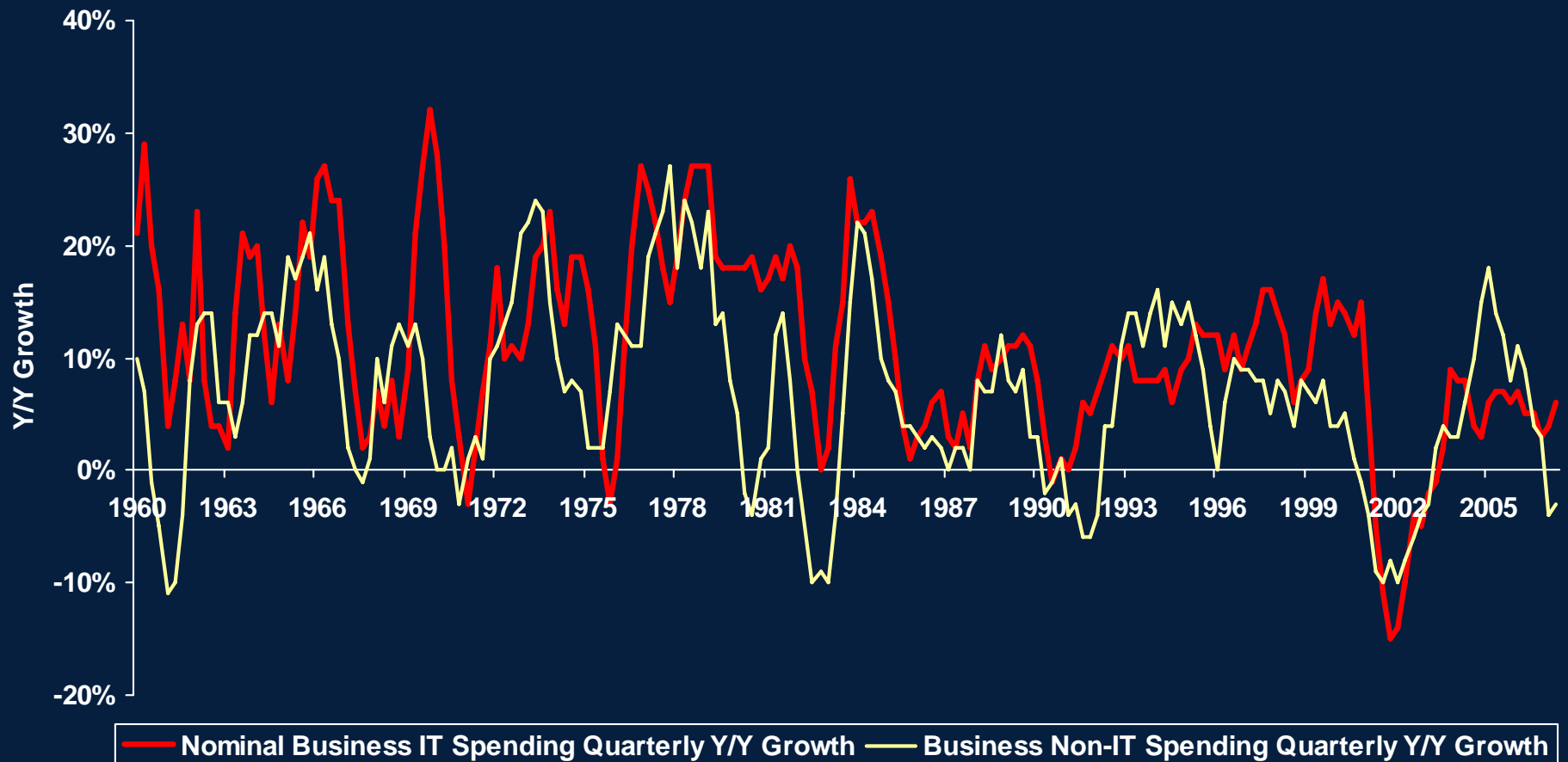
- Consumer pacing strong Internet growth
- Enterprise playing catch up
- Competition for 'platforms' intensifying – margin pressure?
- Personalization continues to ramp – Google / Amazon.com / Facebook...
- Mobiles entering inflection point for Internet usage
- Battles for mobile supremacy will be very intense
- Emerging markets (especially Asia) surprising on upside
- Recession(s) = very serious potential challenge

Morgan Stanley

***Appendix +
Disclosure Section***

Business IT Spending Growth Compelling vs. Non-IT Spending

Business IT vs. Business Non-IT Spending Quarterly Growth Rates (Y/Y)



2006 TMT Update

| Rank | Country | Relative Weighting | Rank | Country | Relative Weighting |
|------|----------------|--------------------|------|------------------|--------------------|
| 1 | USA | 8.7 | 26 | Finland | 4.8 |
| 2 | China | 8.7 | 27 | Poland | 4.8 |
| 3 | Japan | 6.3 | 28 | Turkey | 4.8 |
| 4 | Germany | 5.7 | 29 | Singapore | 4.7 |
| 5 | India | 5.5 | 30 | Greece | 4.7 |
| 6 | United Kingdom | 5.4 | 31 | Hong Kong, China | 4.7 |
| 7 | France | 5.3 | 32 | New Zealand | 4.7 |
| 8 | Brazil | 5.3 | 33 | Argentina | 4.7 |
| 9 | Russia | 5.3 | 34 | Portugal | 4.6 |
| 10 | Italy | 5.2 | 35 | Israel | 4.6 |
| 11 | Canada | 5.1 | 36 | South Africa | 4.6 |
| 12 | South Korea | 5.1 | 37 | Saudi Arabia | 4.6 |
| 13 | Norway | 5.0 | 38 | Czech Republic | 4.6 |
| 14 | Australia | 5.0 | 39 | Malaysia | 4.6 |
| 15 | Spain | 5.0 | 40 | Thailand | 4.6 |
| 16 | Netherlands | 4.9 | 41 | Colombia | 4.6 |
| 17 | Switzerland | 4.9 | 42 | Philippines | 4.6 |
| 18 | Denmark | 4.9 | 43 | Hungary | 4.6 |
| 19 | Ireland | 4.9 | 44 | Iran | 4.6 |
| 20 | Sweden | 4.9 | 45 | Chile | 4.6 |
| 21 | Mexico | 4.9 | 46 | Venezuela | 4.6 |
| 22 | Belgium | 4.8 | 47 | Egypt | 4.5 |
| 23 | Austria | 4.8 | 48 | Vietnam | 4.5 |
| 24 | Taiwan | 4.8 | 49 | Nigeria | 4.5 |
| 25 | Indonesia | 4.8 | 50 | Algeria | 4.5 |

From our database on market sizing of global TMT (Technology, Media & Telecommunications) products and services. We measure market sizes and growth rates for core TMT metrics: nominal GDP per capita (current USD); telephone lines; cable subscribers; installed PCs; mobile phones in use; Internet users and credit/debit cards in use. For each economy, we calculate past / present / potential global market weightings across seven TMT metrics - we call this our relative weighting and we use it to measure / rank a country's propensity for TMT products and services. We standardized each country's position in the global market in each category and adjusted the values to reflect a positive scale. The relative ratings and ranks were determined by calculating an average of z-scores across categories.

Disclosure Section

The information and opinions in Morgan Stanley Research were prepared by Morgan Stanley & Co. Incorporated, and/or Morgan Stanley Dean Witter C.T.V.M. S.A. and their affiliates (collectively, "Morgan Stanley").

Analyst Certification

Unless otherwise stated, the individuals listed on the cover page of this report are research analysts.

Global Research Conflict Management Policy

Morgan Stanley Research has been published in accordance with our conflict management policy, which is available at www.morganstanley.com/institutional/research/conflict/policies.

Important US Regulatory Disclosures on Subject Companies

The following analyst, strategist, or research associate (or a household member) owns securities in a company that he or she covers or recommends in Morgan Stanley Research: Mary Meeker - Amazon.com (common stock), eBay (common stock), Intuit (common stock), Microsoft (common stock), Yahoo! (common stock). Morgan Stanley policy prohibits research analysts, strategists and research associates from investing in securities in their sub industry as defined by the Global Industry Classification Standard ("GICS," which was developed by and is the exclusive property of MSCI and S&P). Analysts may nevertheless own such securities to the extent acquired under a prior policy or in a merger, fund distribution or other involuntary acquisition.

As of September 28, 2007, Morgan Stanley beneficially owned 1% or more of a class of common equity securities of the following companies covered in Morgan Stanley Research: Amazon.com, Apple, Inc., CNET, eBay, Google, GSI COMMERCE, Yahoo!.

As of October 4, 2007, Morgan Stanley held a net long or short position of US\$1 million or more of the debt securities of the following issuers covered in Morgan Stanley Research (including where guarantor of the securities): Amazon.com, eBay, Intuit, Yahoo!.

Within the last 12 months, Morgan Stanley managed or co-managed a public offering of securities of GSI COMMERCE, Intuit, TechTarget, Inc..

Within the last 12 months, Morgan Stanley has received compensation for investment banking services from eBay, Google, Intuit, Microsoft, TechTarget, Inc..

In the next 3 months, Morgan Stanley expects to receive or intends to seek compensation for investment banking services from Activision, Amazon.com, Apple, Inc., CNET, eBay, Electronic Arts, Google, GSI COMMERCE, Intuit, Microsoft, TechTarget, Inc., Yahoo!.

Within the last 12 months, Morgan Stanley & Co. Incorporated has received compensation for products and services other than investment banking services from Apple, Inc., CNET, eBay, Electronic Arts, Microsoft.

Within the last 12 months, Morgan Stanley has provided or is providing investment banking services to, or has an investment banking client relationship with, the following company: Activision, Amazon.com, Apple, Inc., CNET, eBay, Electronic Arts, Google, GSI COMMERCE, Intuit, Microsoft, TechTarget, Inc., Yahoo!.

Within the last 12 months, Morgan Stanley has either provided or is providing non-investment banking, securities-related services to and/or in the past has entered into an agreement to provide services or has a client relationship with the following company: Apple, Inc., CNET, eBay, Electronic Arts, Google, Intuit, Microsoft.

The research analysts, strategists, or research associates principally responsible for the preparation of Morgan Stanley Research have received compensation based upon various factors, including quality of research, investor client feedback, stock picking, competitive factors, firm revenues and overall investment banking revenues.

An employee or director of Morgan Stanley & Co. Incorporated is a director of Microsoft, Yahoo!.

Morgan Stanley & Co. Incorporated makes a market in the securities of Activision, Amazon.com, Apple, Inc., CNET, drugstore.com, eBay, Electronic Arts, Google, GSI COMMERCE, Intuit, Microsoft, TechTarget, Inc., Yahoo!.

Certain disclosures listed above are also for compliance with applicable regulations in non-US jurisdictions.

Disclosure Section

STOCK RATINGS

Different securities firms use a variety of rating terms as well as different rating systems to describe their recommendations. For example, Morgan Stanley uses a relative rating system including terms such as Overweight, Equal-weight or Underweight (see definitions below). A rating system using terms such as buy, hold and sell is not equivalent to our rating system. Investors should carefully read the definitions of all ratings used in Morgan Stanley Research. In addition, since Morgan Stanley Research contains more complete information concerning the analyst's views, investors should carefully read Morgan Stanley Research, in its entirety, and not infer the contents from the rating alone. In any case, ratings (or research) should not be used or relied upon as investment advice. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations.

Global Stock Ratings Distribution

(as of September 30, 2007)

For disclosure purposes only (in accordance with NASD and NYSE requirements), we include the category headings of Buy, Hold, and Sell alongside our ratings of Overweight, Equal-weight and Underweight. Morgan Stanley does not assign ratings of Buy, Hold or Sell to the stocks we cover. Overweight, Equal-weight, and Underweight are not the equivalent of buy, hold, and sell but represent recommended relative weightings (see definitions below). To satisfy regulatory requirements, we correspond Overweight, our most positive stock rating, with a buy recommendation; we correspond Equal-weight and Underweight to hold and sell recommendations, respectively.

| Stock Rating Category | Coverage Universe | | Investment Banking Clients (IBC) | | |
|--------------------------|-------------------|------------|----------------------------------|----------------|----------------------|
| | Count | % of Total | Count | % of Total IBC | % of Rating Category |
| Overweight/Buy | 966 | 42% | 330 | 44% | 34% |
| Equal-weight/Hold | 1017 | 44% | 326 | 44% | 32% |
| Underweight/Sell | 317 | 14% | 88 | 12% | 28% |
| Total | 2,300 | | 744 | | |

Disclosure Section

Data include common stock and ADRs currently assigned ratings. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations. Investment Banking Clients are companies from whom Morgan Stanley or an affiliate received investment banking compensation in the last 12 months.

Analyst Stock Ratings

Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Equal-weight (E). The stock's total return is expected to be in line with the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

Underweight (U). The stock's total return is expected to be below the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.

More volatile (V). We estimate that this stock has more than a 25% chance of a price move (up or down) of more than 25% in a month, based on a quantitative assessment of historical data, or in the analyst's view, it is likely to become materially more volatile over the next 1-12 months compared with the past three years. Stocks with less than one year of trading history are automatically rated as more volatile (unless otherwise noted). We note that securities that we do not currently consider "more volatile" can still perform in that manner.

Unless otherwise specified, the time frame for price targets included in Morgan Stanley Research is 12 to 18 months.

Analyst Industry Views

Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.

In-Line (I): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be in line with the relevant broad market benchmark, as indicated below.

Cautious (C): The analyst views the performance of his or her industry coverage universe over the next 12-18 months with caution vs. the relevant broad market benchmark, as indicated below.

Benchmarks for each region are as follows: North America - S&P 500; Latin America - relevant MSCI country index or MSCI Latin America Index; Europe - MSCI Europe; Japan - TOPIX; Asia - relevant MSCI country index.

Stock price charts and rating histories for companies discussed in Morgan Stanley Research are available at www.morganstanley.com/companycharts or from your local investment representative. You may also request this information by writing to Morgan Stanley at 1585 Broadway, (Attention: Equity Research Management), New York, NY, 10036 USA.

Other Important Disclosures

For a discussion, if applicable, of the valuation methods used to determine the price targets included in Morgan Stanley Research, and the risks related to achieving these targets, please refer to the latest relevant published research on these stocks. Research is available through your sales representative or on Client Link at www.morganstanley.com and other electronic systems.

Morgan Stanley Research does not provide individually tailored investment advice. Morgan Stanley Research has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. The securities/instruments discussed in Morgan Stanley Research may not be suitable for all investors. Morgan Stanley recommends that investors independently evaluate particular investments and strategies, and encourages investors to seek the advice of a financial adviser. The appropriateness of a particular investment or strategy will depend on an investor's individual circumstances and objectives. The securities, instruments, or strategies discussed in Morgan Stanley Research may not be suitable for all investors, and certain investors may not be eligible to purchase or participate in some or all of them.

Morgan Stanley Research is not an offer to buy or sell or the solicitation of an offer to buy or sell any security/instrument or to participate in any particular trading strategy. The "Important US Regulatory Disclosures on Subject Companies" section in Morgan Stanley Research lists all companies mentioned where Morgan Stanley owns 1% or more of a class of common securities of the companies. For all other companies mentioned in Morgan Stanley Research, Morgan Stanley may have an investment of less than 1% in securities or derivatives of securities of companies and may trade them in ways different from those discussed in Morgan Stanley Research. Employees of Morgan Stanley not involved in the preparation of Morgan Stanley Research may have investments in securities or derivatives of securities of companies mentioned and may trade them in ways different from those discussed in Morgan Stanley Research. Derivatives may be issued by Morgan Stanley or associated persons.

Morgan Stanley and its affiliate companies do business that relates to companies/instruments covered in Morgan Stanley Research, including market making and specialized trading, risk arbitrage and other proprietary trading, fund management, commercial banking, extension of credit, investment services and investment banking. Morgan Stanley sells to and buys from customers the securities/instruments of companies covered in Morgan Stanley Research on a principal basis.

With the exception of information regarding Morgan Stanley, research prepared by Morgan Stanley Research personnel are based on public information. Morgan Stanley makes every effort to use reliable, comprehensive information, but we make no representation that it is accurate or complete. We have no obligation to tell you when opinions or information in Morgan Stanley Research change apart from when we intend to discontinue research coverage of a subject company. Facts and views presented in Morgan Stanley Research have not been reviewed by, and may not reflect information known to, professionals in other Morgan Stanley business areas, including investment banking personnel.

Morgan Stanley Research personnel conduct site visits from time to time but are prohibited from accepting payment or reimbursement by the company of travel expenses for such visits.

The value of and income from your investments may vary because of changes in interest rates or foreign exchange rates, securities prices or market indexes, operational or financial conditions of companies or other factors.

There may be time limitations on the exercise of options or other rights in your securities transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. Unless otherwise stated, the cover page provides the closing price on the primary exchange for the subject company's securities/instruments.

Disclosure Section

To our readers in Taiwan: Information on securities/instruments that trade in Taiwan is distributed by Morgan Stanley Taiwan Limited ("MSTL"). Such information is for your reference only. The reader should independently evaluate the investment risks and is solely responsible for their investment decisions. Morgan Stanley Research may not be distributed to the public media or quoted or used by the public media without the express written consent of Morgan Stanley. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be construed as a recommendation or a solicitation to trade in such securities/instruments. MSTL may not execute transactions for clients in these securities/instruments.

To our readers in Hong Kong: Information is distributed in Hong Kong by and on behalf of, and is attributable to, Morgan Stanley Asia Limited as part of its regulated activities in Hong Kong. If you have any queries concerning Morgan Stanley Research, please contact our Hong Kong sales representatives.

Morgan Stanley Research is disseminated in Japan by Morgan Stanley Japan Securities Co., Ltd.; in Hong Kong by Morgan Stanley Asia Limited (which accepts responsibility for its contents); in Singapore by Morgan Stanley Asia (Singapore) Pte. (Registration number 199206298Z) and/or Morgan Stanley Asia (Singapore) Securities Pte Ltd (Registration number 200008434H), regulated by the Monetary Authority of Singapore, which accepts responsibility for its contents; in Australia by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services licence No. 233742, which accepts responsibility for its contents; in Korea by Morgan Stanley & Co International plc, Seoul Branch; in India by Morgan Stanley India Company Private Limited; in Canada by Morgan Stanley Canada Limited, which has approved of, and has agreed to take responsibility for, the contents of Morgan Stanley Research in Canada; in Germany by Morgan Stanley Bank AG, Frankfurt am Main, regulated by Bundesanstalt fuer Finanzdienstleistungsaufsicht (BaFin); in Spain by Morgan Stanley, S.V., S.A., a Morgan Stanley group company, which is supervised by the Spanish Securities Markets Commission (CNMV) and states that Morgan Stanley Research has been written and distributed in accordance with the rules of conduct applicable to financial research as established under Spanish regulations; in the United States by Morgan Stanley & Co. Incorporated, which accepts responsibility for its contents. Morgan Stanley & Co. International plc, authorized and regulated by Financial Services Authority, disseminates in the UK research that it has prepared, and approves solely for the purposes of section 21 of the Financial Services and Markets Act 2000, research which has been prepared by any of its affiliates. Private U.K. investors should obtain the advice of their Morgan Stanley & Co. International plc representative about the investments concerned. In Australia, Morgan Stanley Research and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (DIFC Branch), regulated by the Dubai Financial Services Authority (the DFSA), and is directed at wholesale customers only, as defined by the DFSA. This research will only be made available to a wholesale customer who we are satisfied meets the regulatory criteria to be a client.

The information in Morgan Stanley Research is being communicated by Morgan Stanley & Co. International plc (QFC Branch), regulated by the Qatar Financial Centre Regulatory Authority (the QFCRA), and is directed at business customers and market counterparties only and is not intended for Retail Customers as defined by the QFCRA.

The trademarks and service marks contained in Morgan Stanley Research are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages of any kind relating to such data. The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property of MSCI and S&P.

Morgan Stanley Research, or any portion hereof may not be reprinted, sold or redistributed without the written consent of Morgan Stanley.

Morgan Stanley Research is disseminated and available primarily electronically, and, in some cases, in printed form.

Additional information on recommended securities/instruments is available on request.

Disclosure Section

| | | | |
|---|---|--|--|
| The Americas 1585 Broadway New York, NY 10036-8293 United States Tel: +1 (1) 212 761 4000 | Europe 25 Cabot Square, Canary Wharf London E14 4QA United Kingdom Tel: +44 (0) 20 7 425 8000 | Japan 4-20-3 Ebisu, Shibuya-ku Tokyo 150-6008 Japan Tel: +81 (0) 3 5424 5000 | Asia/Pacific Three Exchange Square Central Hong Kong Tel: +852 2848 5200 |
|---|---|--|--|

© 2007 Morgan Stanley