



Internet Trends 2008

Mary Meeker

November 5 @ Web 2.0 Summit

Morgan Stanley

Technology / Internet Trends

November 5, 2008

Web 2.0 Summit – San Francisco

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Outline

- **Economy**
 1. Recession – a long time coming, how long will it last?
 2. Technology & Advertising Spending – closely tied to GDP growth
- **Technology / Internet**
 1. Digital Consumer – Undermonetized social networks / video / VoIP driving powerful usage growth
 2. Mobile – Innovation in wireless products / services accelerating
 3. Emerging Markets – Pacing next wave of technology adoption
- **Closing Thoughts**
 1. Companies with cogent business models that provide consumer value should survive / thrive – consumers need value more than they have needed it in a long time...

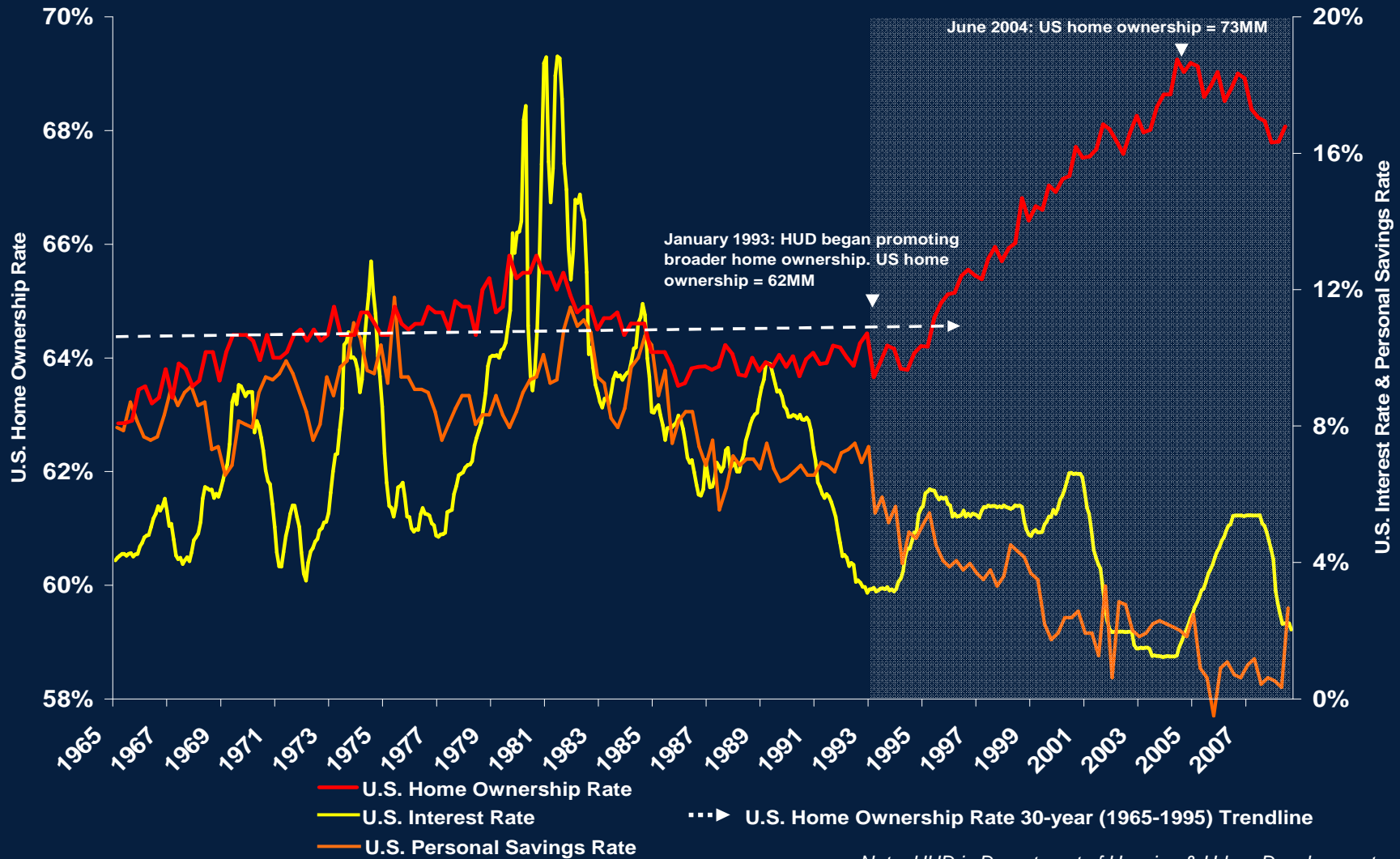
Economy

1) Recession – a long time coming, how long will it last?
1 year? 5 years?

Roots of Economic Challenge?

10+ Years of Rising Home Ownership + Declining Interest / Savings Rates

U.S. Homeownership Rates vs. Interest Rates vs. Personal Savings Rates, 1965-2008



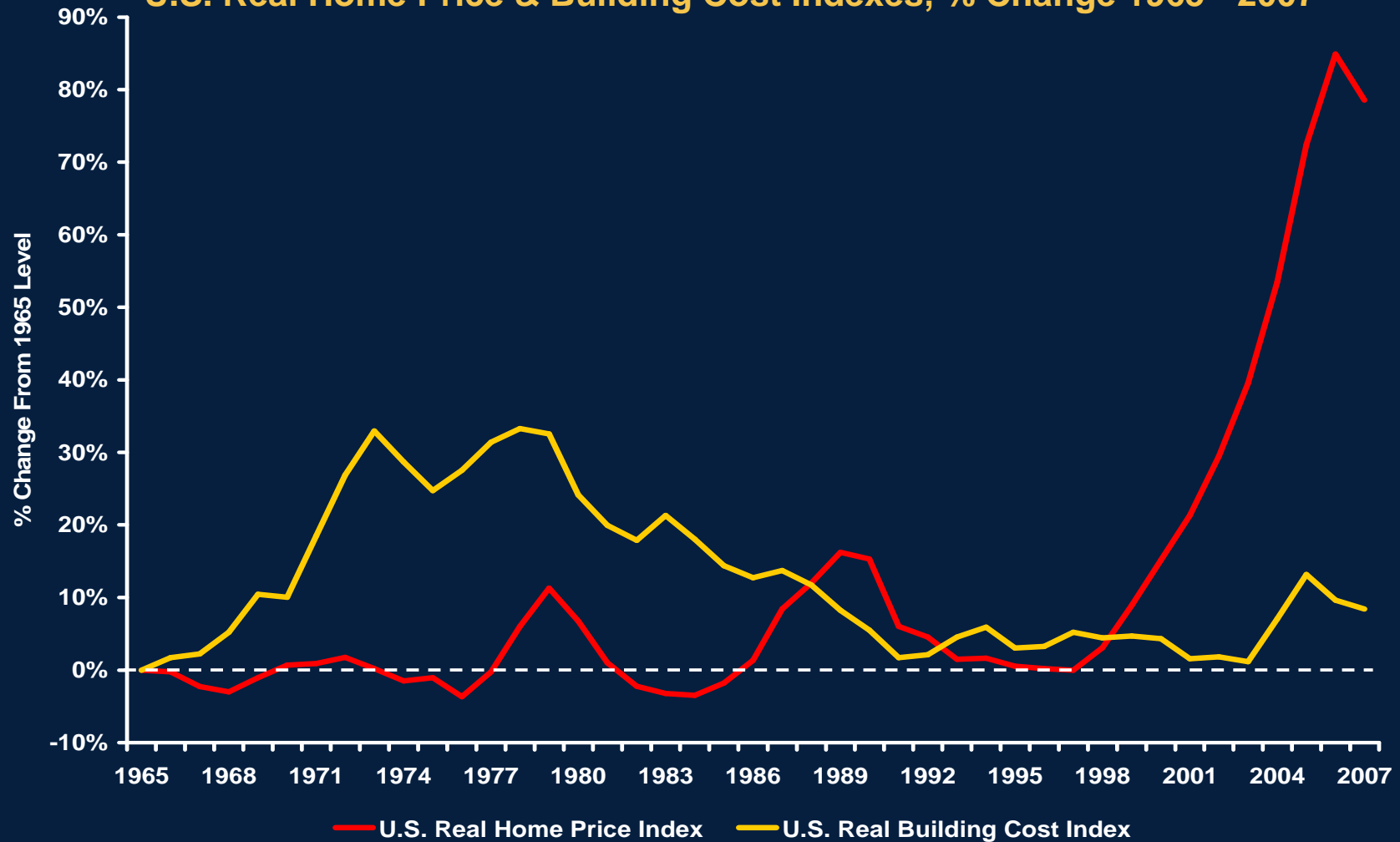
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Note: HUD is Department of Housing & Urban Development.
Interest rate is the overnight federal funds rate.

Source: Federal Reserve, DOC Bureau of Economic Analysis (BEA), Morgan Stanley Research.

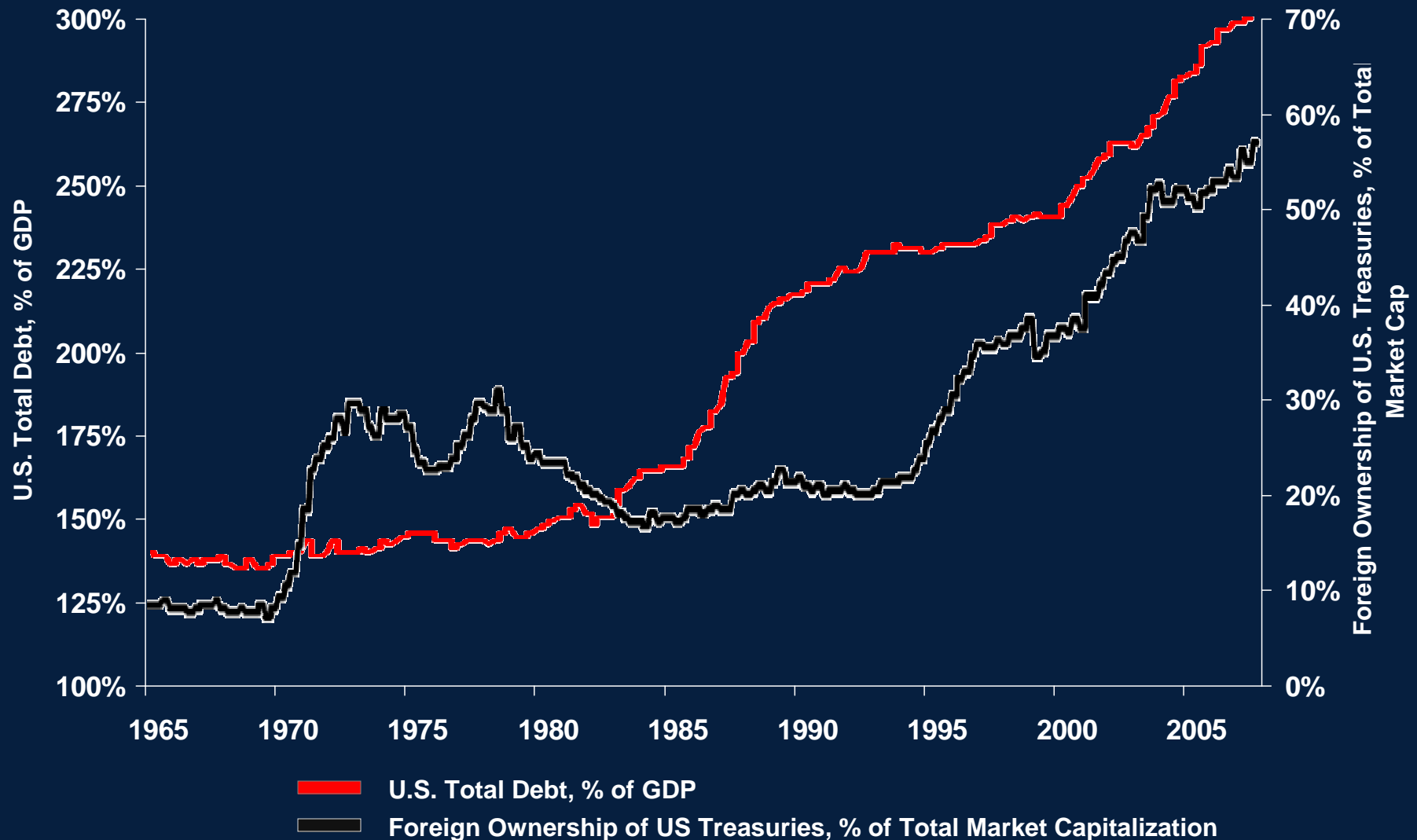
10 Years of Rising Home Prices – Up ~2x

U.S. Real Home Price & Building Cost Indexes, % Change 1965 - 2007



USA Total Debt = Up ~2x Over 30 Years to 3x GDP

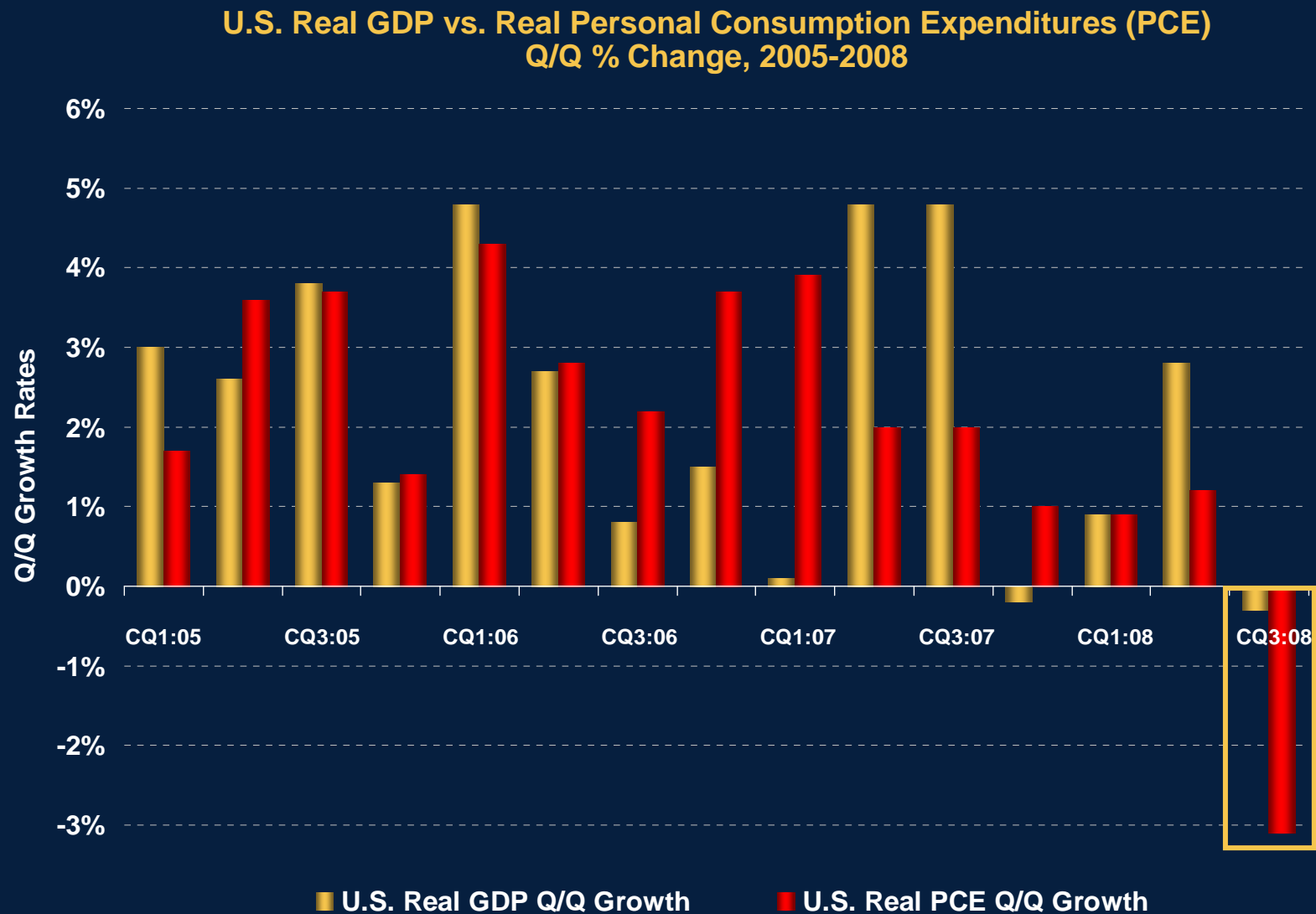
Foreign Ownership Ramped to ~60% US Treasuries – Helped Pace ‘Easy Money’ + Leverage



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Source: Bridgewater, total debt include both public and private debt, US government debt = ~65% GDP, Morgan Stanley Research.

-0.3% Q/Q US GDP Growth in CQ3 / Consumer Spending Fell 3.1% Biggest Q/Q Decline Since 1980 – October < September < August < July

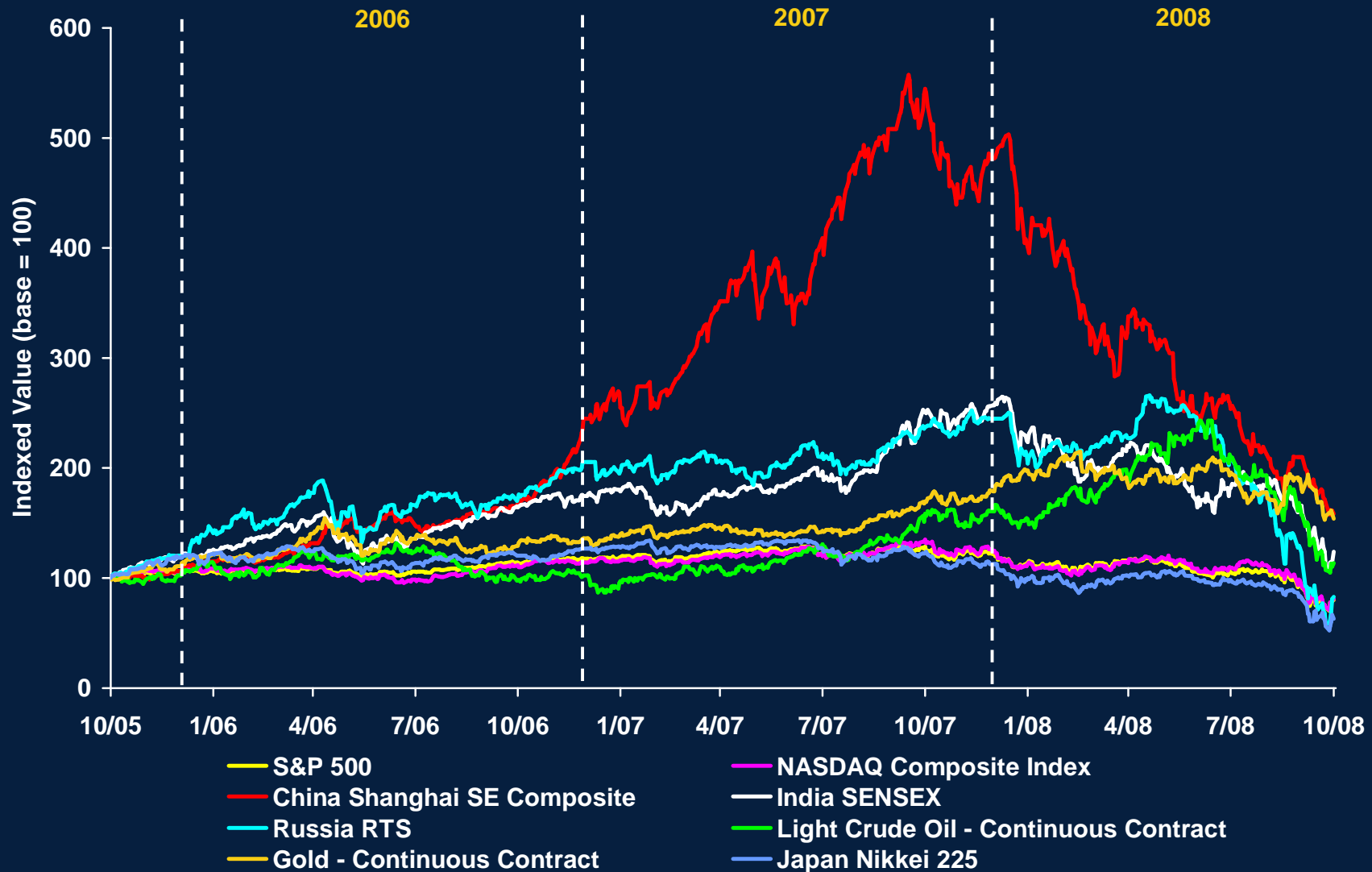


Global GDP Growth Forecasts Have Downward Bias – Decelerating / Negative Growth for 2008E + 2009E

Country / Region	IMF Forecasts, 10/08				Difference from 7/08 IMF Forecasts	
	2006	2007	2008E	2009E	2008E	2009E
USA	2.8%	2.0%	1.6%	0.1%	0.3%	-0.7%
Euro zone	2.8	2.6	1.3	0.2	-0.4	-1.0
UK	2.8	3.0	1.0	-0.1	-0.8	-1.8
China	11.6	11.9	9.7	9.3	--	-0.6
India	9.8	9.3	7.9	6.9	-0.1	-1.1
Russia	7.4	8.1	7.0	5.5	-0.7	-1.8
Brazil	3.8	5.4	5.2	3.5	0.3	-0.5
Developed Markets ⁽¹⁾	3.0	2.6	1.5	0.5	-0.2	-0.9
Emerging Markets ⁽²⁾	7.9	8.0	6.9	6.1	--	-0.7
World	5.1	5.0	3.9	3.0	-0.2	-0.9

Stock Market = Leading Indicator of Economic Growth

China off 71% vs. 12-Month Peak, Russia -67% / Japan -50% / Oil -53% / S&P500 -36%



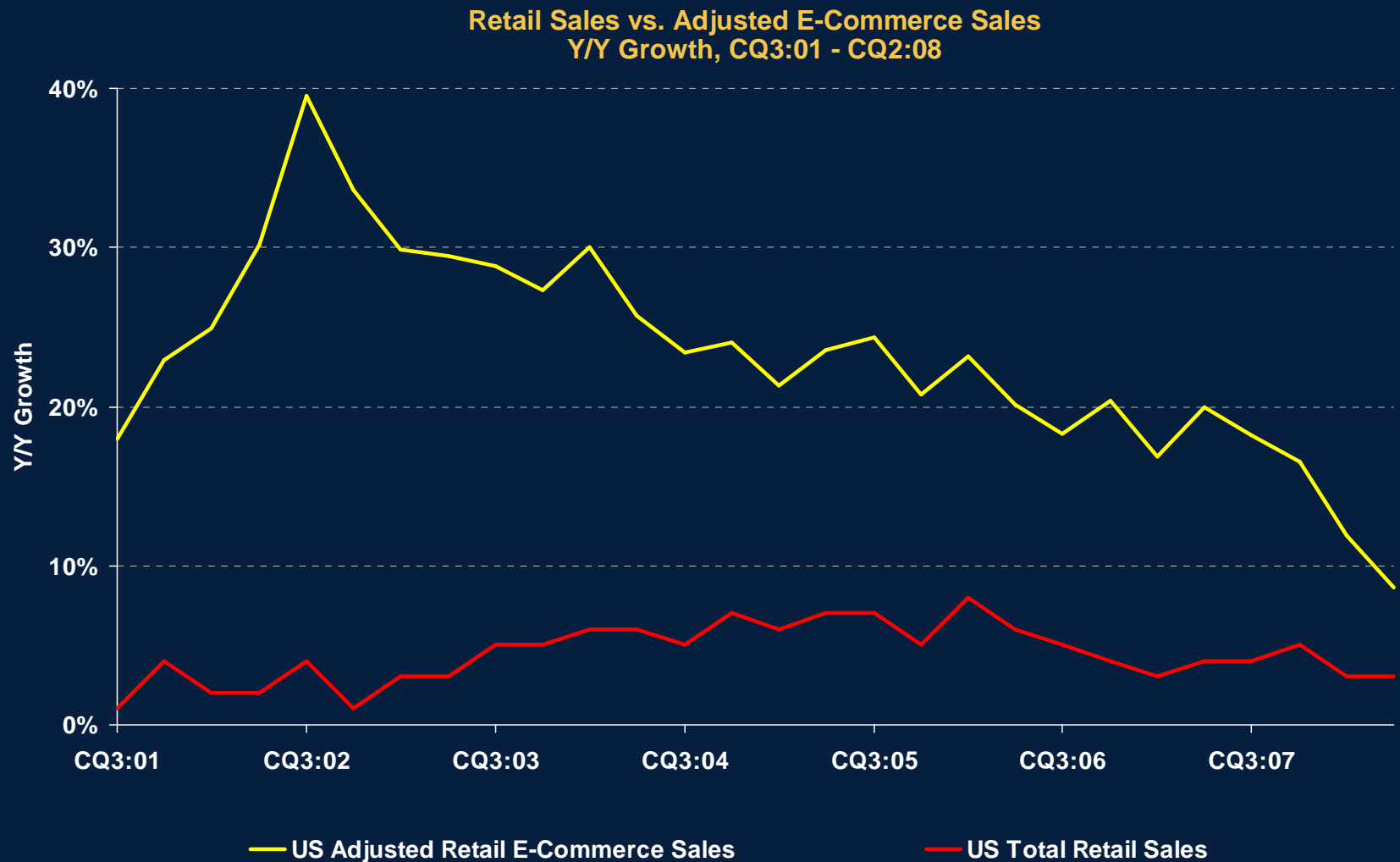
S&P500 – Your Customers Have Taken Big Hits

S&P Sector	Total Mkt Cap (\$B) 10/31/08	% Change				Market Cap Leaders
		2006	2007	2008 YTD	Peak to Current ⁽¹⁾	
Financials	1,314	16%	-20%	-41%	-53%	JPMorgan, Bank of America
Consumer Discretionary	722	9	-18	-35	-46	McDonald's, Walt Disney
Telecom Services	281	32	-12	-39	-44	AT&T, Verizon
Industrials	930	8	7	-36	-41	GE, United Technologies
Information Technology	1,393	11	12	-37	-40	Microsoft, IBM
Materials	274	10	14	-37	-40	Monsanto, DuPont
Utilities	325	17	6	-29	-33	Exelon, Southern
Energy	1,118	14	36	-33	-30	Exxon, Chevron
Health Care	1,192	1	1	-23	-27	Johnson & Johnson, Pfizer
Consumer Staples	1,218	8	10	-14	-13	Wal-Mart, Procter & Gamble
S&P 500 Total ⁽²⁾	8,767	11%	1%	-33%	-38%	

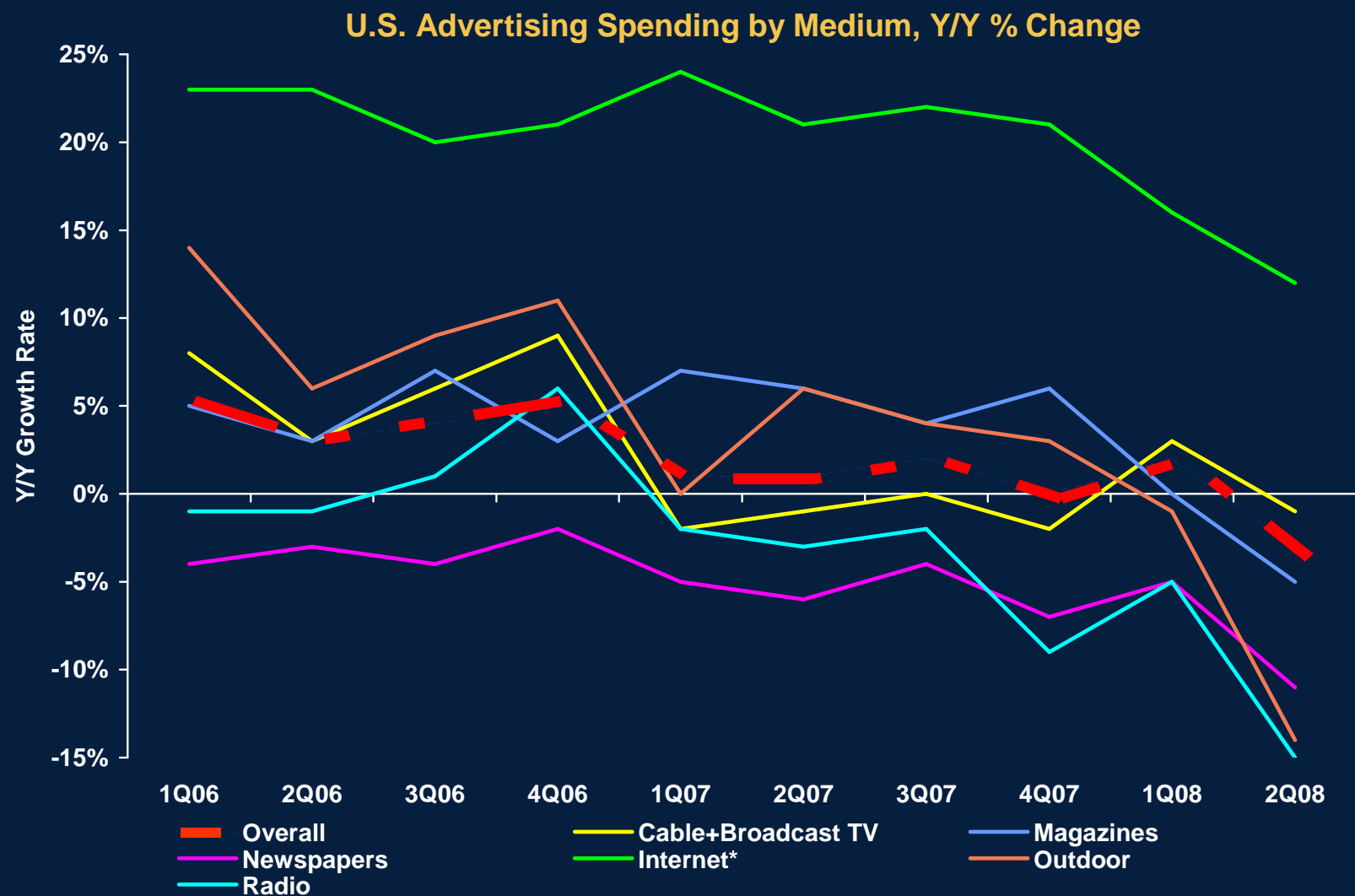
Economy

2) Technology + Advertising Spending –
closely tied to GDP growth...also, remembering 2000-2003

Retail Sales Growth Rates Slowing

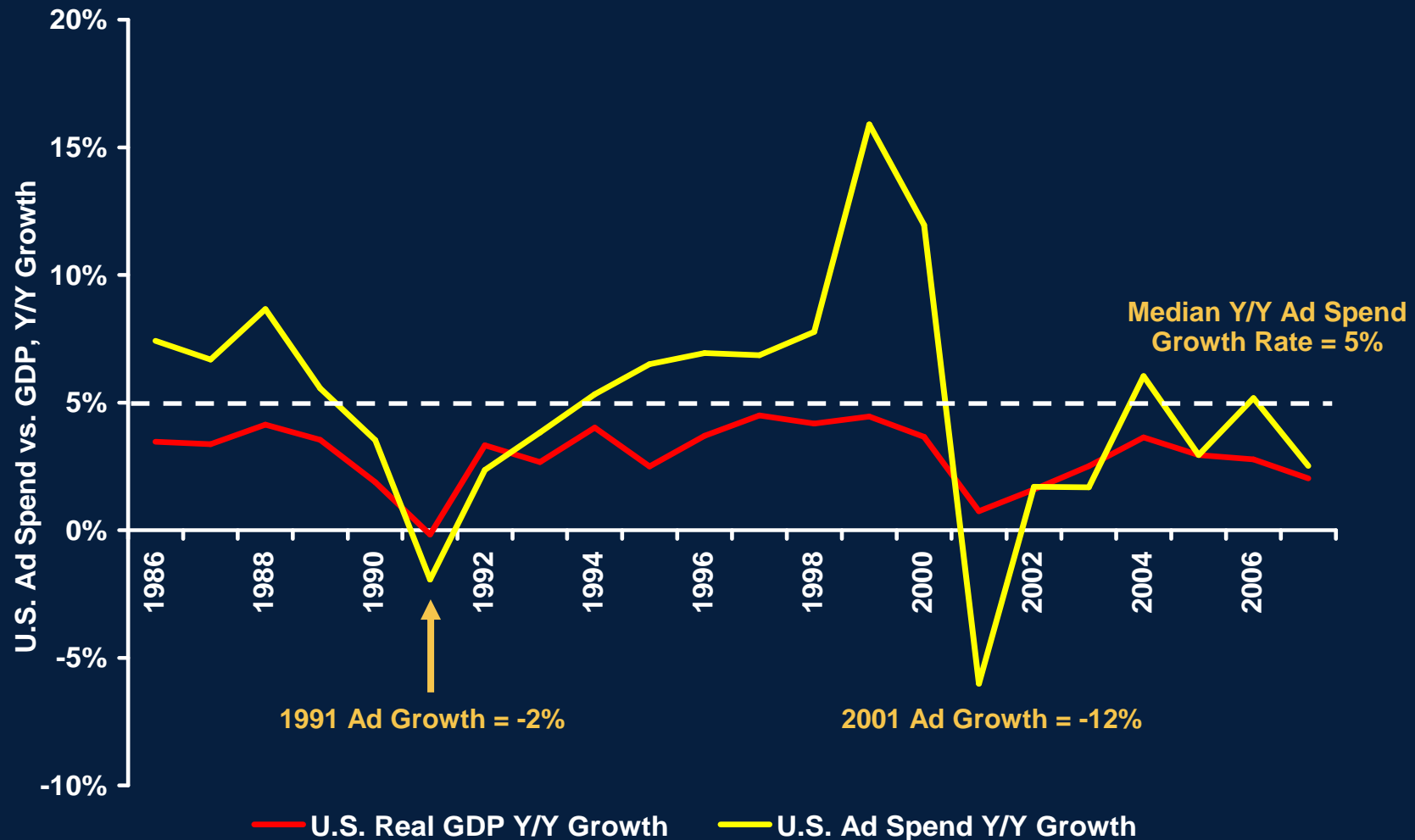


Advertising Growth Rates Slowing



Advertising Spending & GDP Growth = High Correlation of 81%

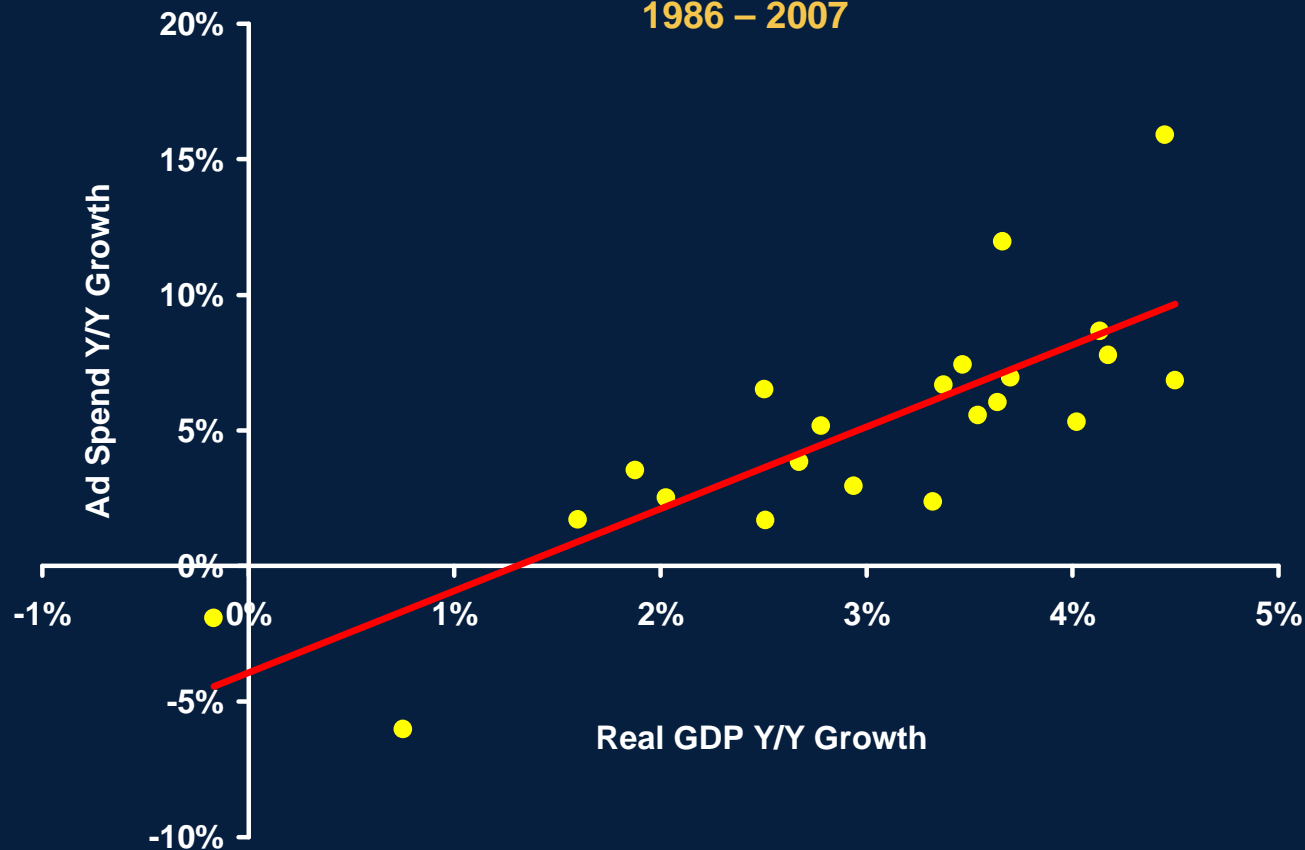
U.S. Advertising Spending Y/Y Growth vs. Real GDP Y/Y Growth, 1986 – 2007



Simple Regression Analysis:

- 1) Ad spend growth 3x sensitivity of real GDP growth
- 2) If GDP flat (current MS forecast), ad spend could decline ~4% Y/Y

**U.S. Advertising Spending vs. Real GDP
1986 – 2007**



● U.S. Ad Spend vs. Real GDP Y/Y Growth
— Linear Regression Line ($y = 3.0263x - 0.0394$ $R^2 = 0.6553$)

$$y = 3.0263x - 0.0394$$

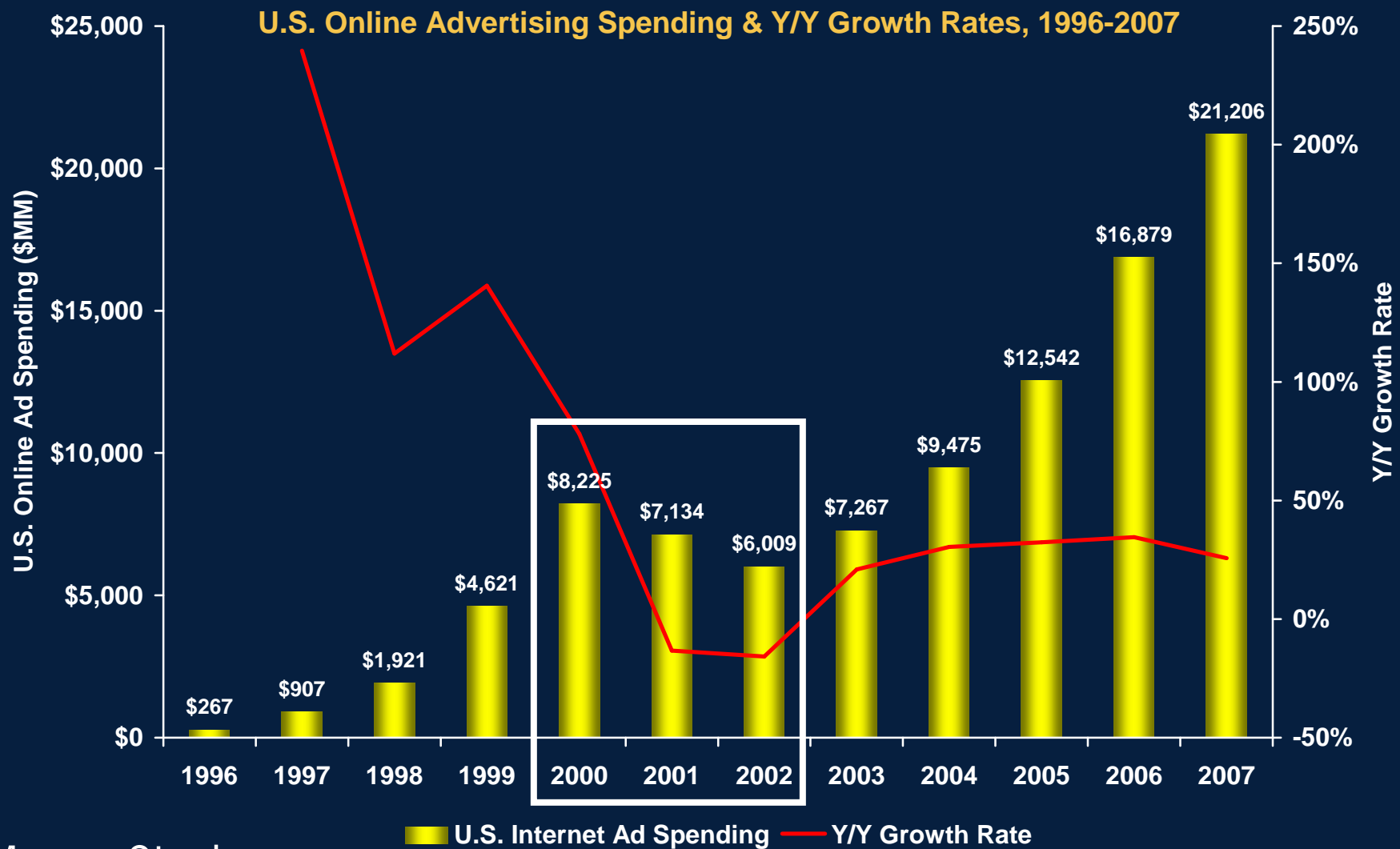
$$R^2 = 0.6553$$

y – ad spend growth
x – real GDP growth

If real GDP Y/Y growth is...	Ad spend Y/Y growth could be...
5%	11%
4	8
3	5
2	2
1	-1
0	-4
-1	-7
-2	-10
-3	-13
-4	-16
-5	-19

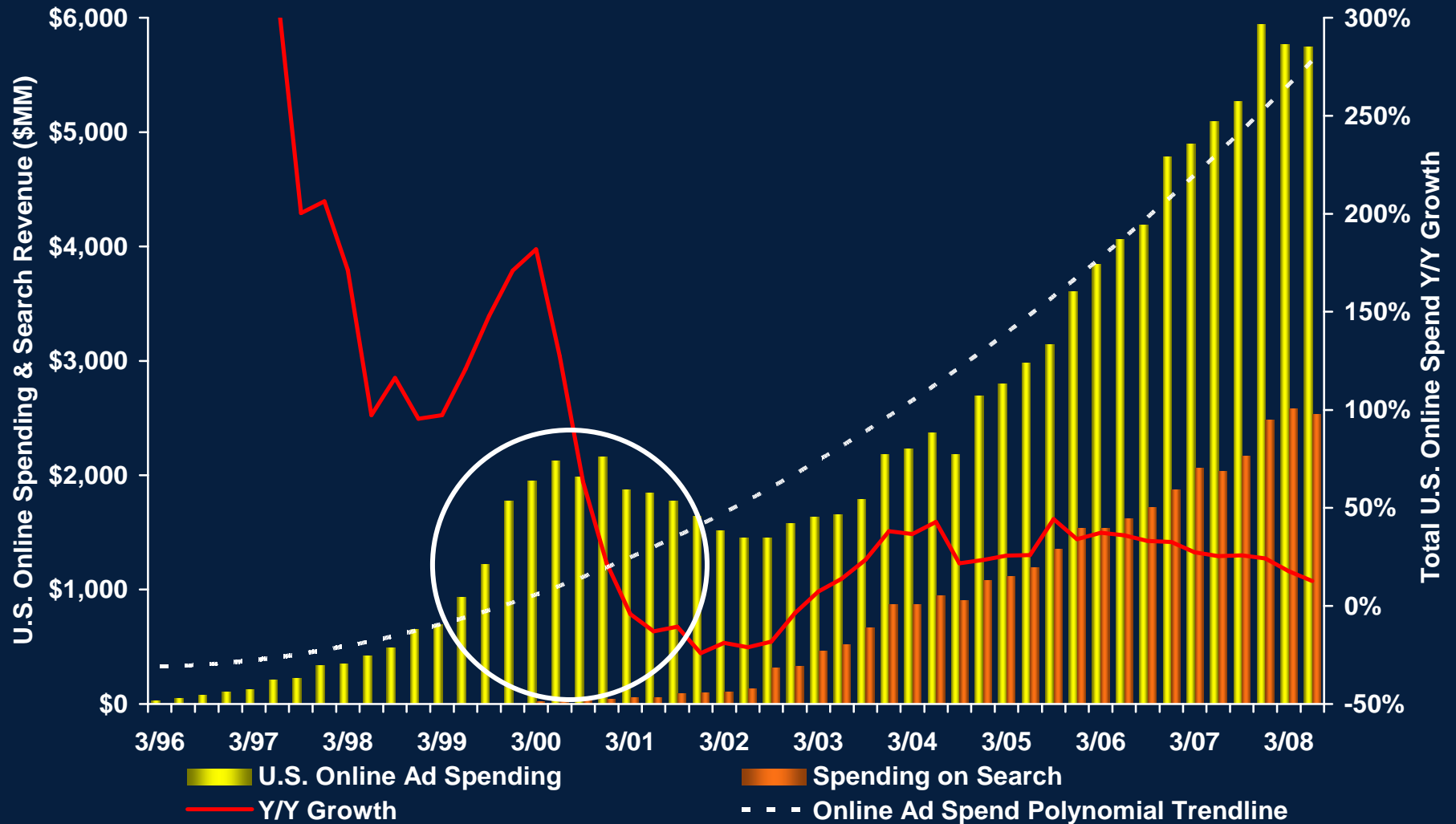
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-1	-7
-2	-10
-3	-13
-4	-16
-5	-19

Online Ad Spending Bad News = From 2000 to 2002, USA Spending Fell 27%

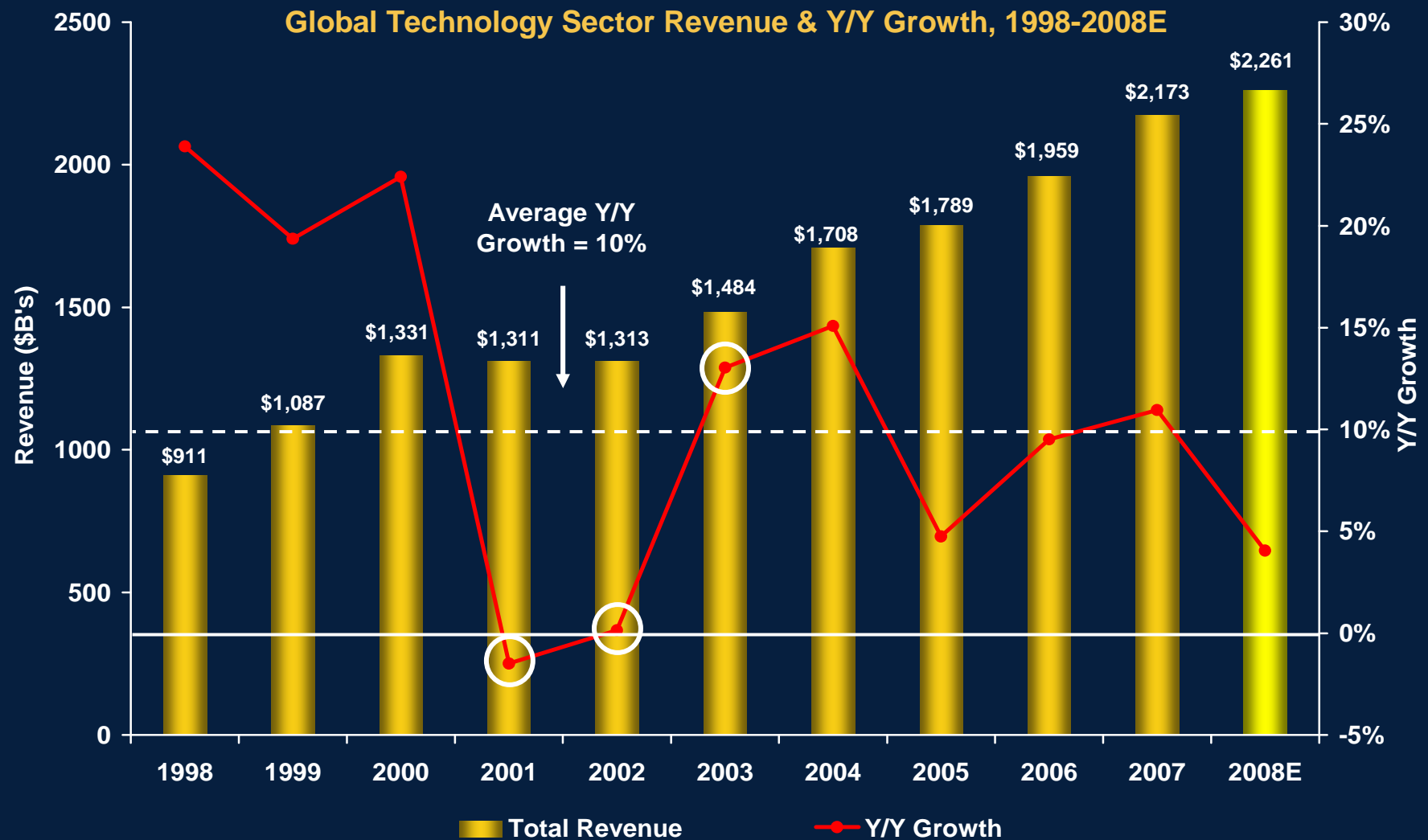


Online Ad Spending Good News = Now, Less Ad 'Over Spending' vs. Trend Line However, Q/Q Pattern Looks a Bit Like Early 2001

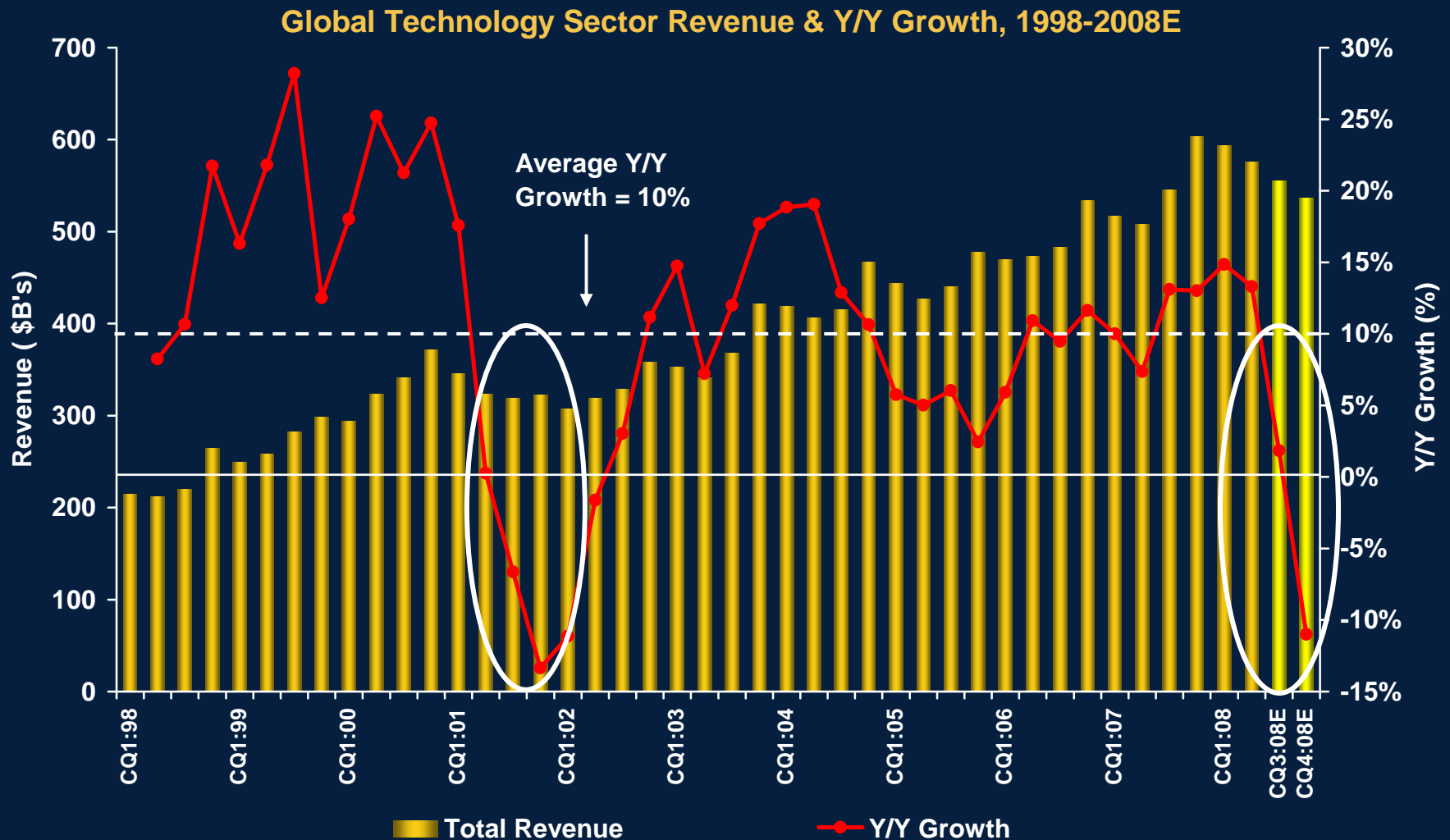
U.S. Online Advertising Spending & Y/Y Growth Rates, CQ1:96-CQ2:08



Tech Spending 2000-2003 – 2 Years of Negative / Flat Growth – -1% in 2001 / 0% in 2002 / +13% in 2003



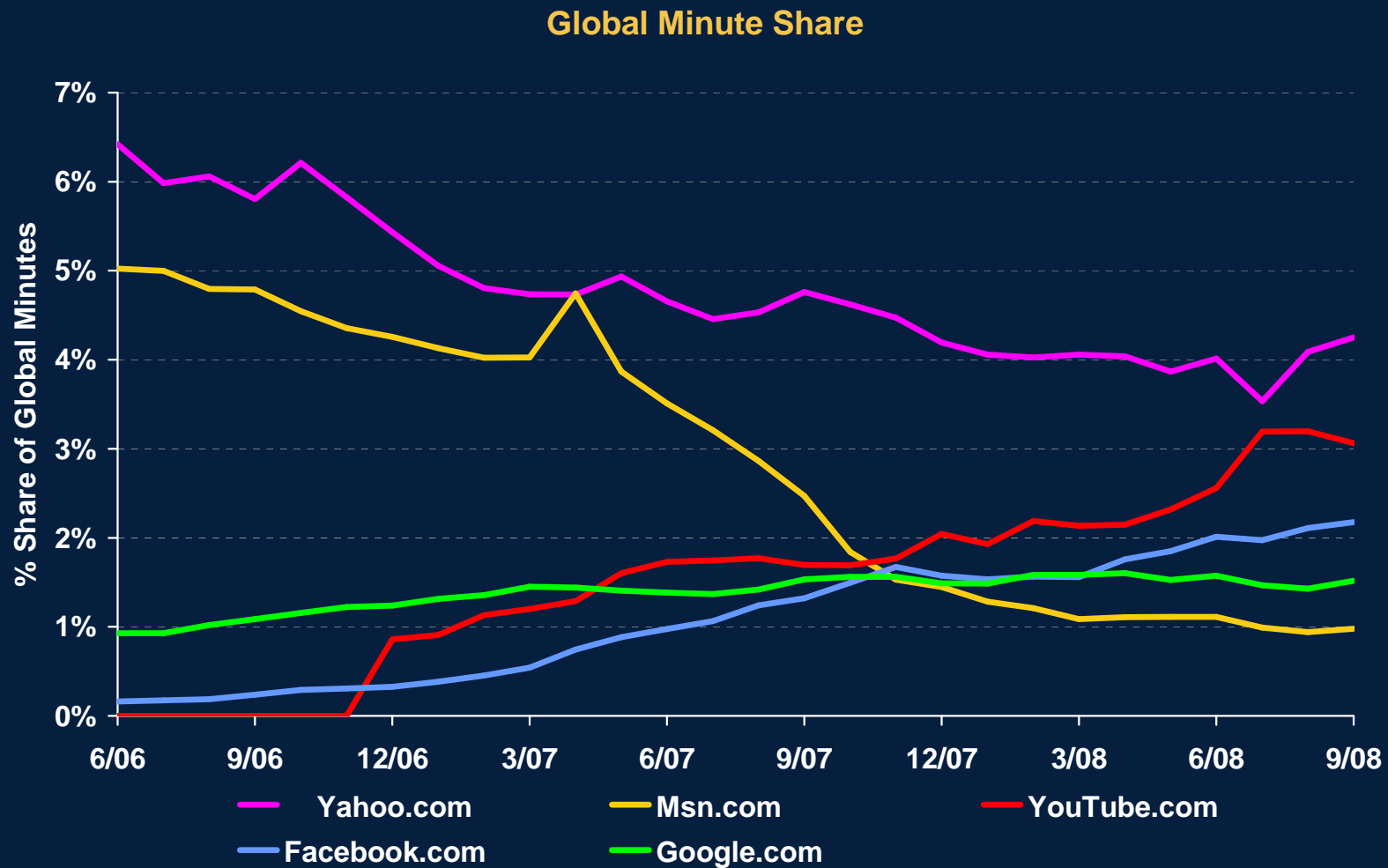
5 Quarters of Negative Q/Q Growth, Then 5 Quarters of Flat / Modest Growth –
Trough Y/Y Decline of 13% in CQ4:01, Current CH2:08 Forecasts Show Faster
Rate of Decline than CH2:01







Technology / Internet

1) Digital Consumer –
Undermonetized social networks / video / VoIP
driving powerful usage growth – opportunity for innovative
marketers to capitalize on low CPMs

YouTube + Facebook Gained 500 Basis Points of Relative Share in Past 2+ Years While Yahoo! + MSN Lost Share

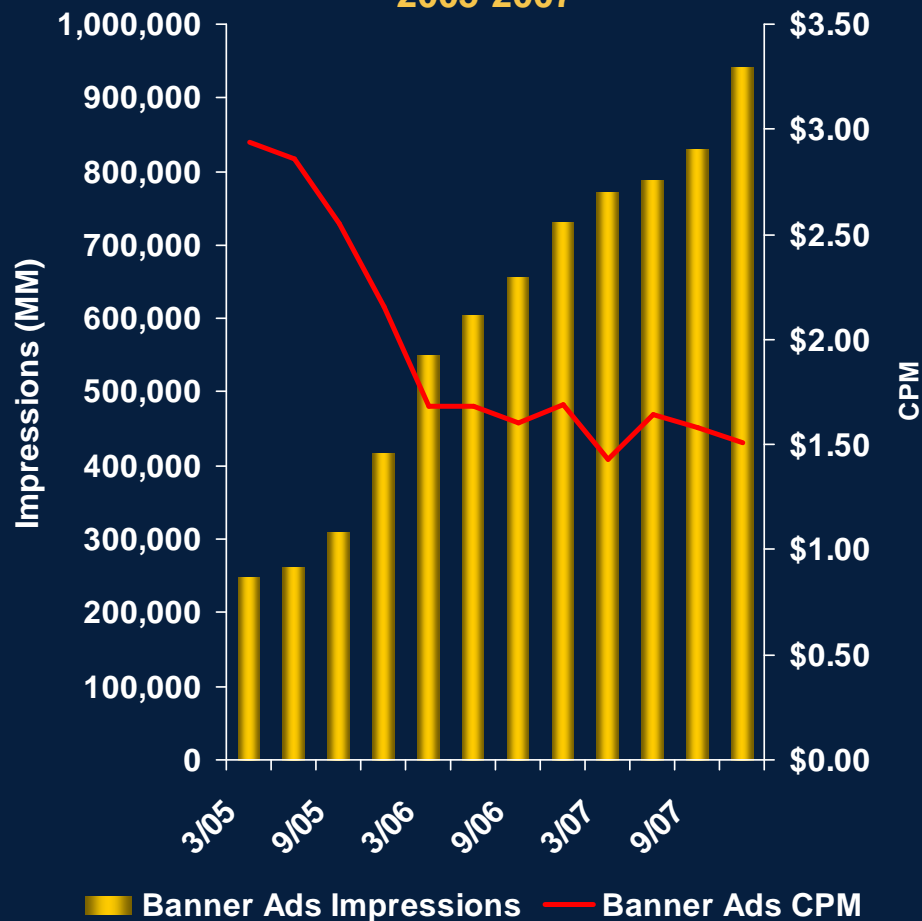


Undermonetized Internet Usage Growth Drivers – Video + Social Networking + VoIP + Payments

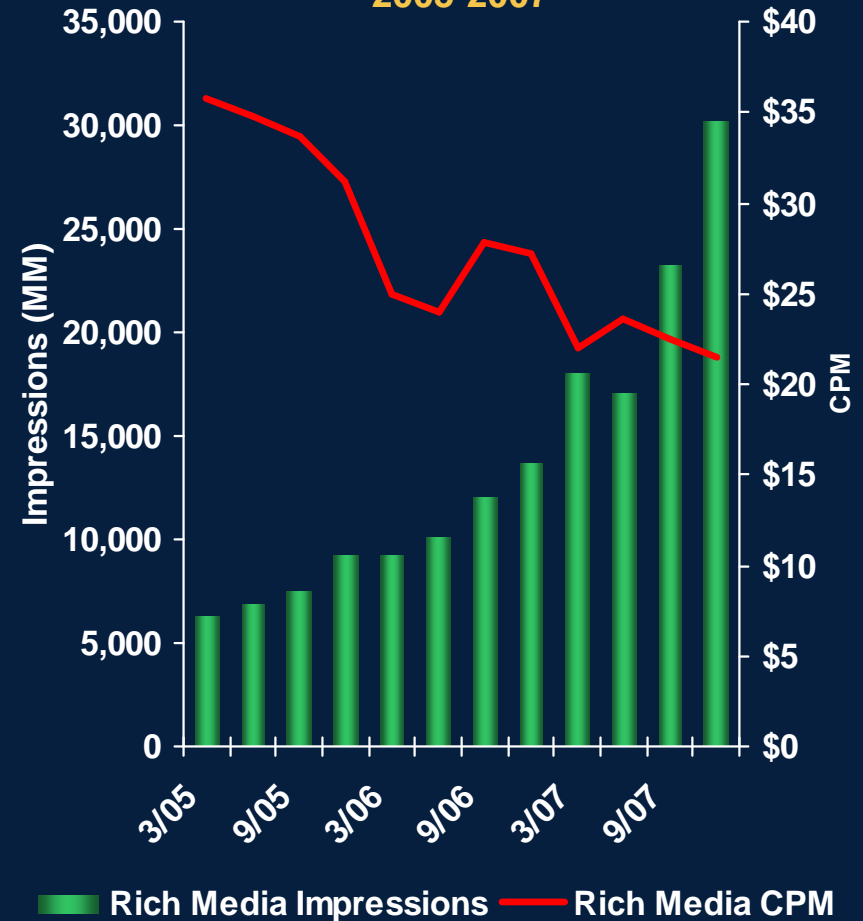
	Users	Y/Y Growth	Comments
	329MM ⁽¹⁾	+52%	#3 site in global minutes; 5B views of online video in the US (Americans watched a total of 12.6B videos / 591MM hours online in 9/08); #2 global search engine – search queries on YouTube reached 9.2B in 8/08 (+123% Y/Y), surpassing Yahoo! sites with 8.5B searches (+2% Y/Y). ^(1,2,3,6)
	161MM ⁽¹⁾	+119%	#5 site in global minutes; 120MM+ active users; 50%+ users outside of college; 24K+ applications + 95% of Facebook members have used at least one ^(1,4)
	370MM ⁽⁵⁾	+51%	If 'carrier' then #2 behind China Mobile; \$1.55 annualized revenue per registered user (-3% Y/Y); 2.2B Skype Out minutes (+54% Y/Y); 16.0B Skype-to-Skype minutes (+63% Y/Y) ⁽⁵⁾
	65MM ⁽⁵⁾	+19%	\$15B total payment volume (TPV), +28% Y/Y, higher than eBay's global gross merchandise volume; Off-eBay payment volume +49% Y/Y to 51% of TPV ⁽⁵⁾

Ad Supply > Ad Demand – Ad Impressions Growing Rapidly...CPMs Declining

U.S. Banner Ad Impressions & CPM,
2005-2007



U.S. Rich Media Impressions & CPM,
2005-2007



Technology / Internet

2) Mobile –

Innovation in wireless products / services accelerating – changes should create + destroy significant wealth

Mobile – A New Computing Cycle With Game Changer Products with Extraordinary Ease-of-Use

Nintendo Wii

30MM consoles since 11/06 launch
– raised bar with motion sensors +
playability



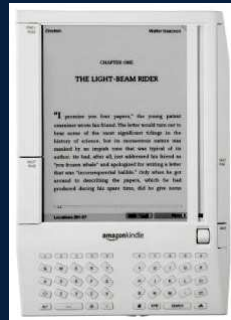
Microsoft Xbox 360

12MM Xbox Live members (+100%
Y/Y) since 11/02 launch – raised
bar with online playability



Amazon.com Kindle

With free EV-DO + 190K titles +
newspaper / magazine / blog
subscriptions. Amazon may do with
books what Apple did with tunes.
Kindle accounts for 12% of
AMZN's sales for titles available on
Kindle



Apple iPhone 3G

1MM units sold in three days (10MM
apps downloaded over the same
period); mobile browser market share
already 50% > Windows Mobile –
raised bar with ease-of-use +
functionality



3 Skype Phone

500K+ units in < 200 days. Leverage
large Skype user base of 370MM
(+51%Y/Y) + create a low-cost web-
enabled VoIP, social networking, digital
presence phone. INQ1 next...



Garmin + TomTom + Dash PND

18MM+ units sold in 2007 (+125% Y/Y)
– lower price points + innovative
features such as spoken street names
have driven NA / Western Europe PND
penetration of 11% in 2007



Morgan Stanley

Source: Nintendo (CQ2:08), Microsoft, Amazon.com, Apple, TechCrunch estimates, eBay (CQ3),
Garmin, TomTom, Net Applications 12/07, Morgan Stanley Research.

Notebooks Retrofitting to Cloud Via 3G – PCs Retrofitted to Internet Via Dial-Up ~1995 Deja Vu?!

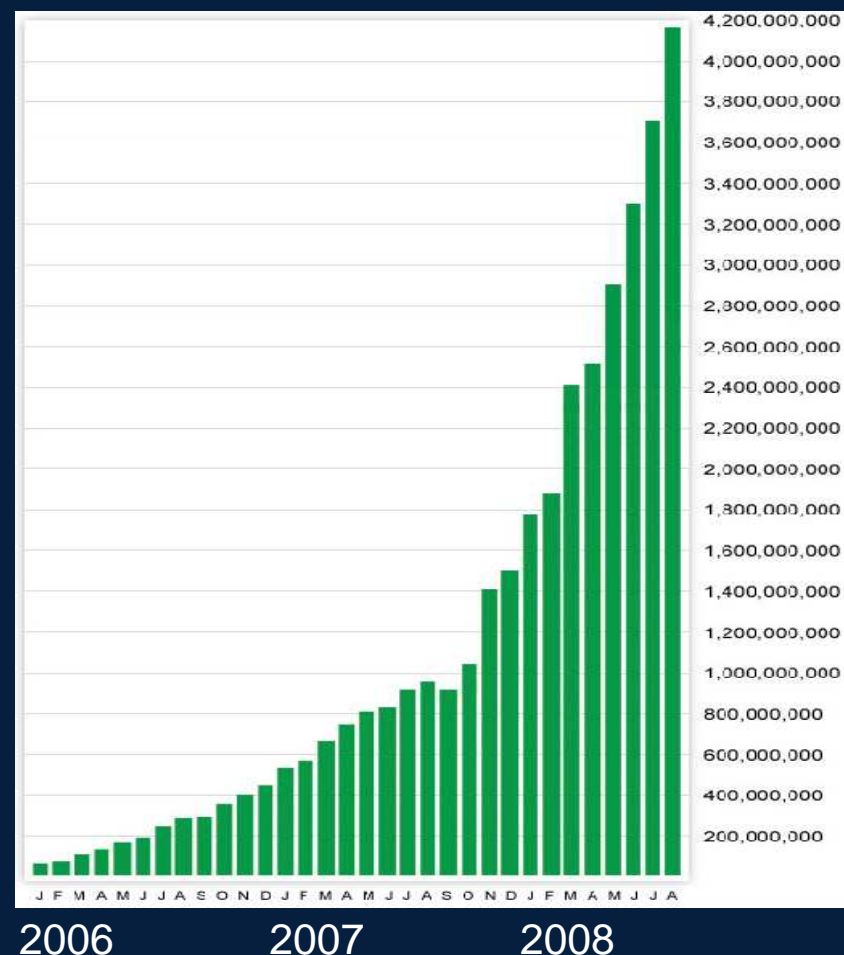
- Global cellular modem to rise from 5MM in 2006E to 68MM+ shipments in 2012E (53% CAGR) - ABI Research, 5/07
- 64% of new Austrian broadband subs used cellular modems, CQ2:07
- 66MM global WiFi unit shipments, C2007E - Synergy Research
- 13MM cellular modem users in USA, CQ2:08E - Nielsen Mobile

Opera Mobile Web Browser Illustrates Mobile Internet Growth - ~17MM Users (+357% Y/Y), 4.1B Page Views (+337% Y/Y), 8/08

A full web experience + 50% faster

- Remote Server first pre-processes requested web pages
- Web content is then compressed to reduce the size of data transfer
- Fully-rendered web pages sent to your phone
- Advantage: full web rendering and faster browsing on simpler phones

Pages transcoded per month

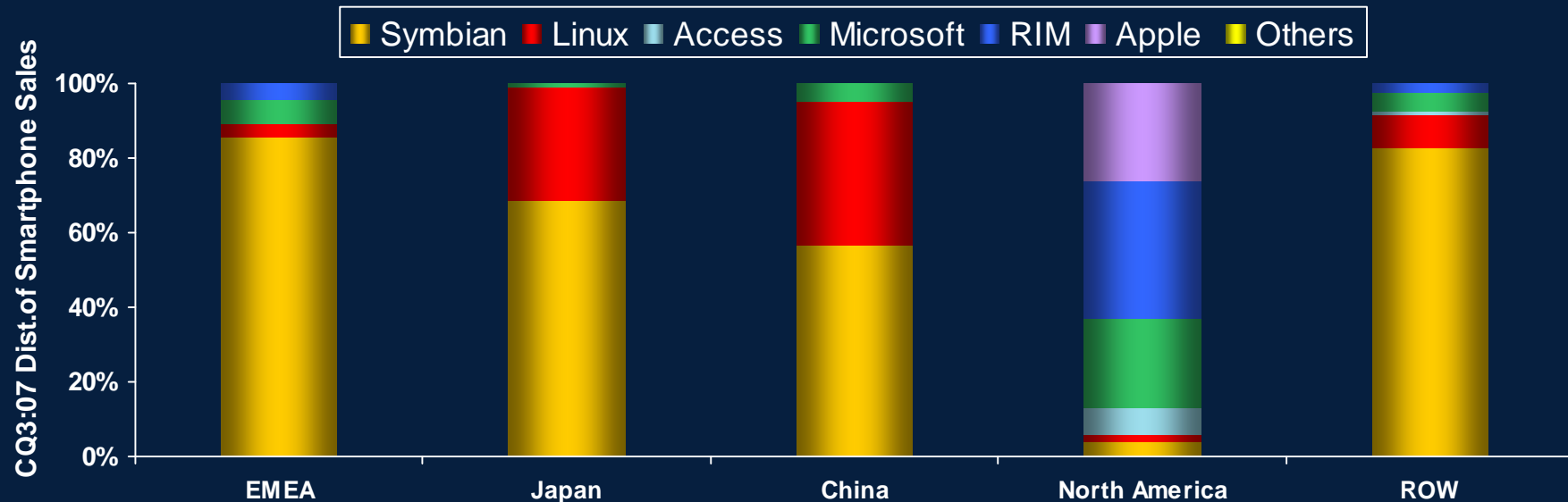
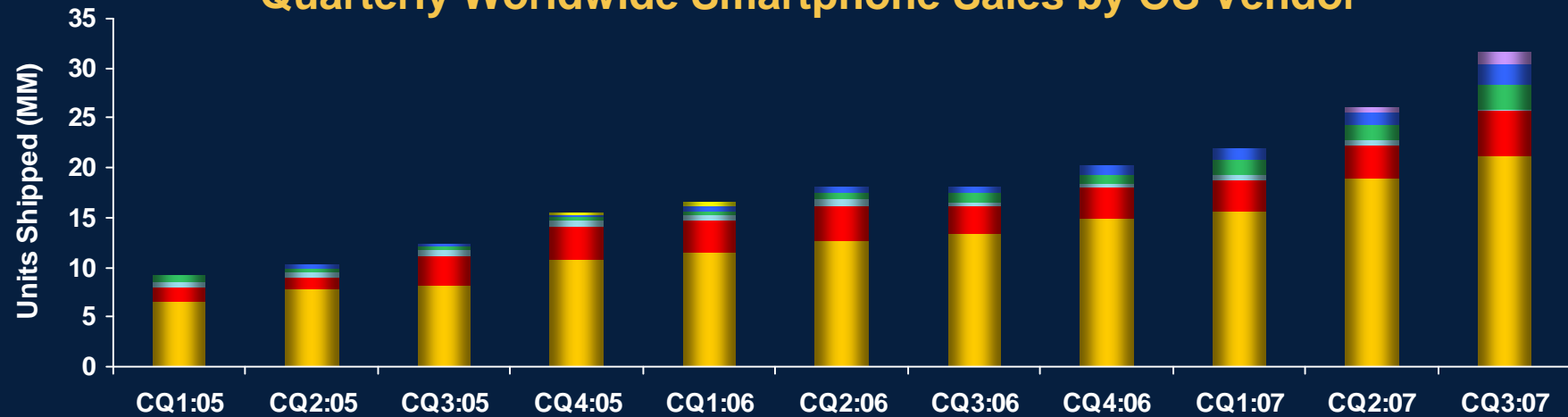


Mobile Internet Evolving Very Quickly

Date	Important Announcements in the Mobile Industry
10/01/08	AT&T announces reorganization to better align broadband, TV and mobile services for consumers.
10/01/08	Apple drops the non-disclosure agreement (NDA) for iPhone application developers.
9/30/08	Nokia to acquire leading consumer email and instant messaging provider OZ Communications.
9/29/08	Nokia's Chief Technology Officer Bob Iannucci resigns.
9/28/08	Motorola to build a 350-person Android team.
9/24/08	Google, T-Mobile and HTC launch G1, the first phone based on Google's Android open mobile platform.
8/04/08	Motorola hires Qualcomm's Sanjay Jha as co-chief executive to oversee the mobile devices division.
7/23/08	Nokia, Qualcomm settle patent dispute.
7/11/08	Apple and AT&T launch iPhone 3G in the U.S.
6/24/08	Nokia acquires Symbian Limited and establishes the Symbian Foundation.
5/12/08	RIM introduces the BlackBerry Bold smartphone.
5/12/08	RIM, RBC and Thomson Reuters to anchor a \$150MM BlackBerry Partner Fund focused on developing mobile applications.
5/08/08	Apple, KPCB launches \$100MM iFund venture capital pool to support iPhone / iPod Touch application development.

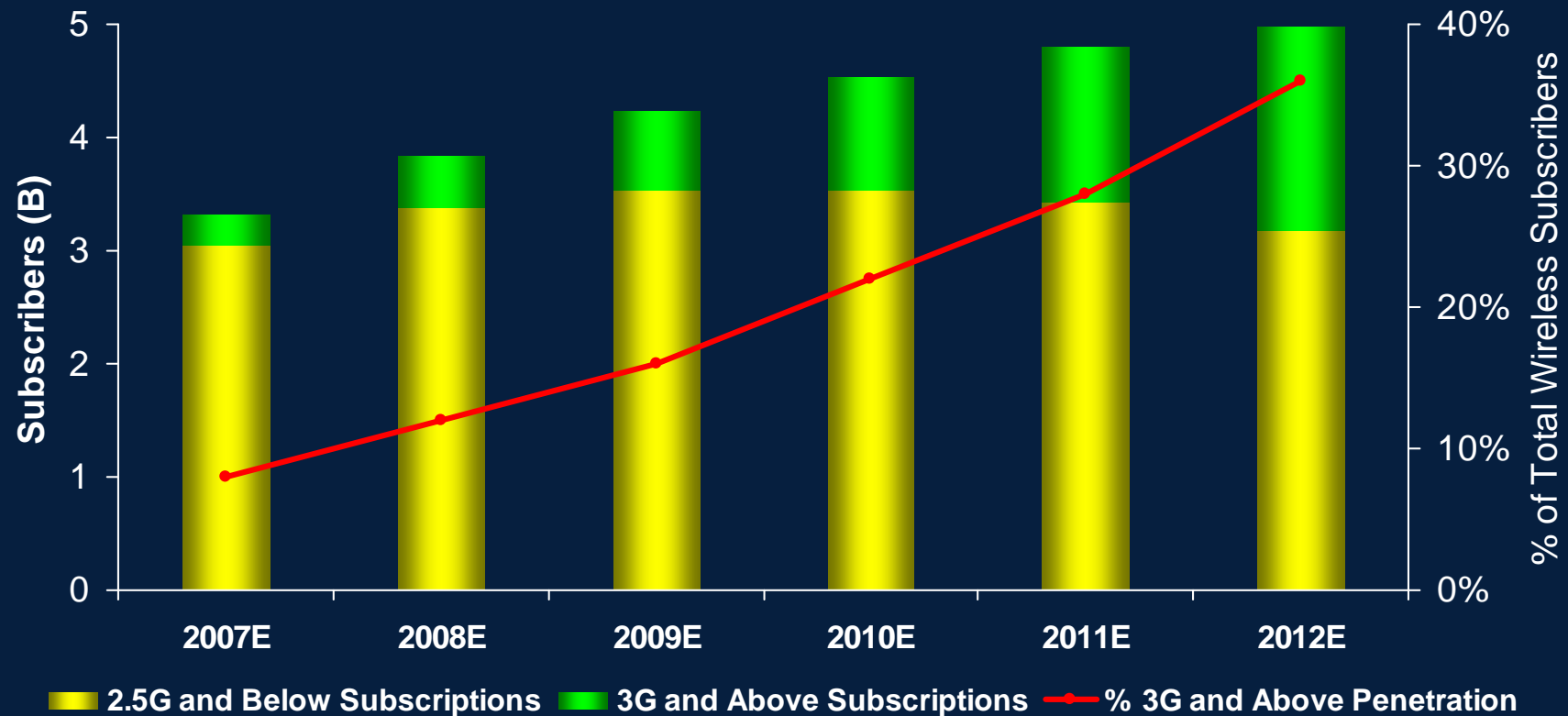
Symbian Dominates Smartphones But Losing Share – USA Could Gain Lead in Mobile Internet Innovation!?

Quarterly Worldwide Smartphone Sales by OS Vendor

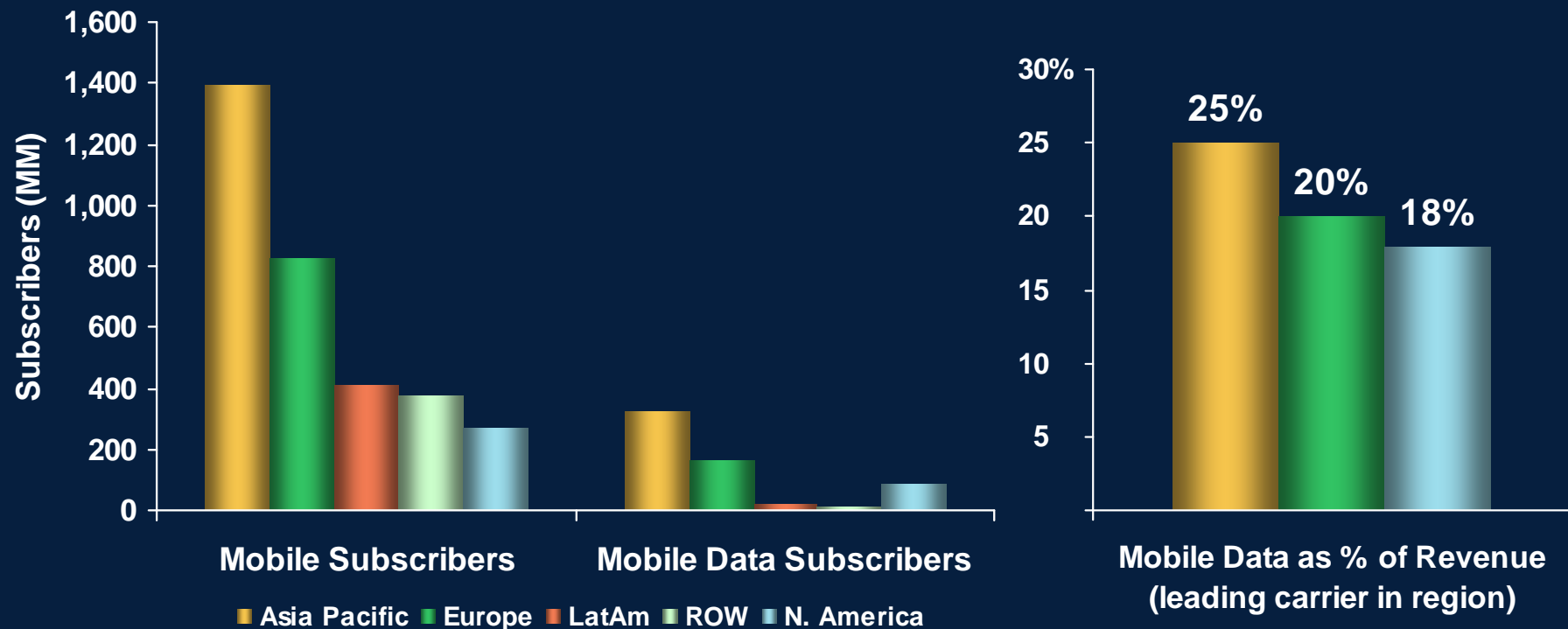


Still Early in 3G+ Ramp But... 2010 Should Be Inflection Point @ ~22% of Subscribers

Global 3G+ Penetration

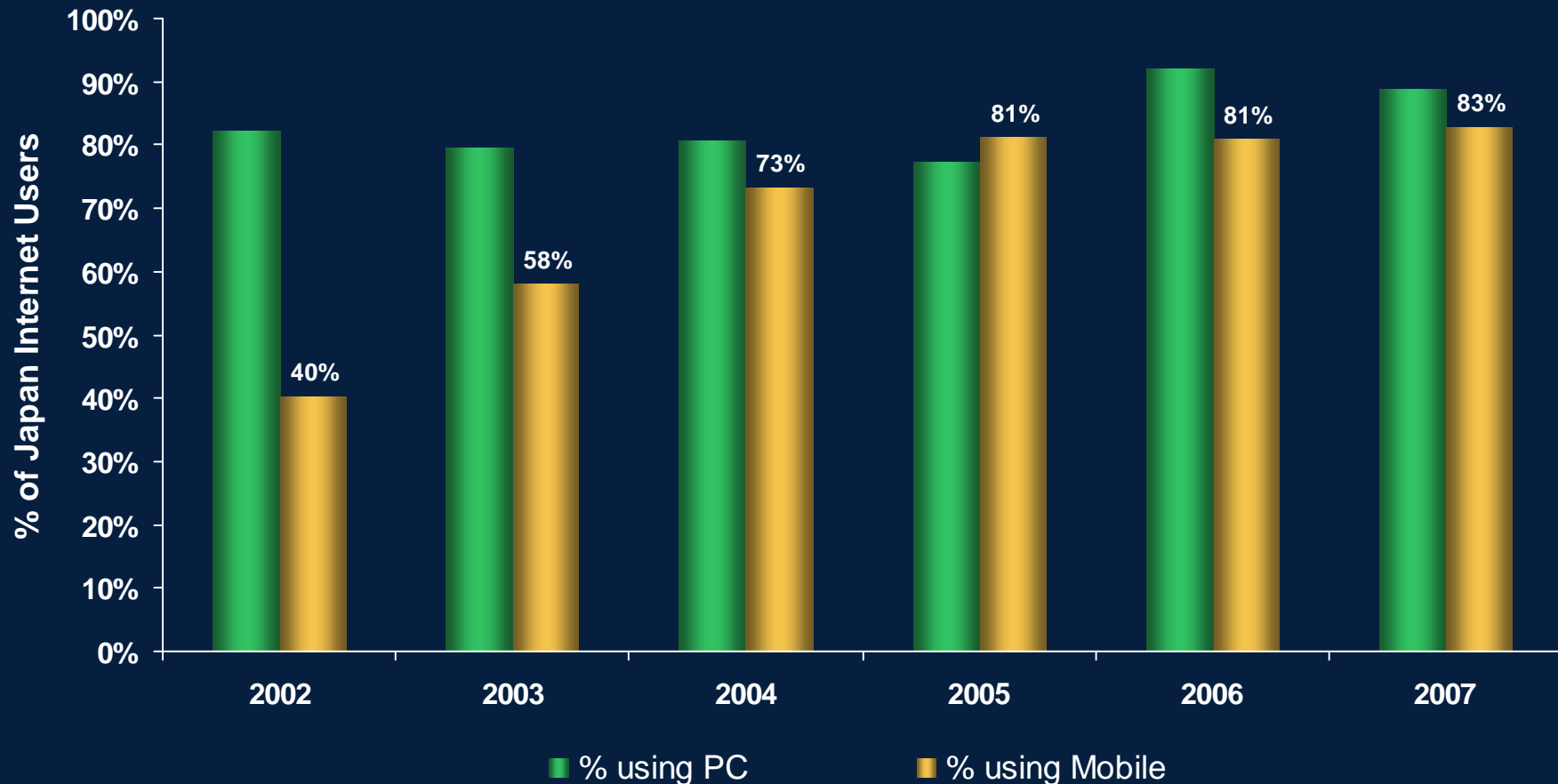


Asia / Europe Lead in Mobile \$s – Mobile Data 25% of Carrier Revenue in Asia vs. 18% in US, 2007

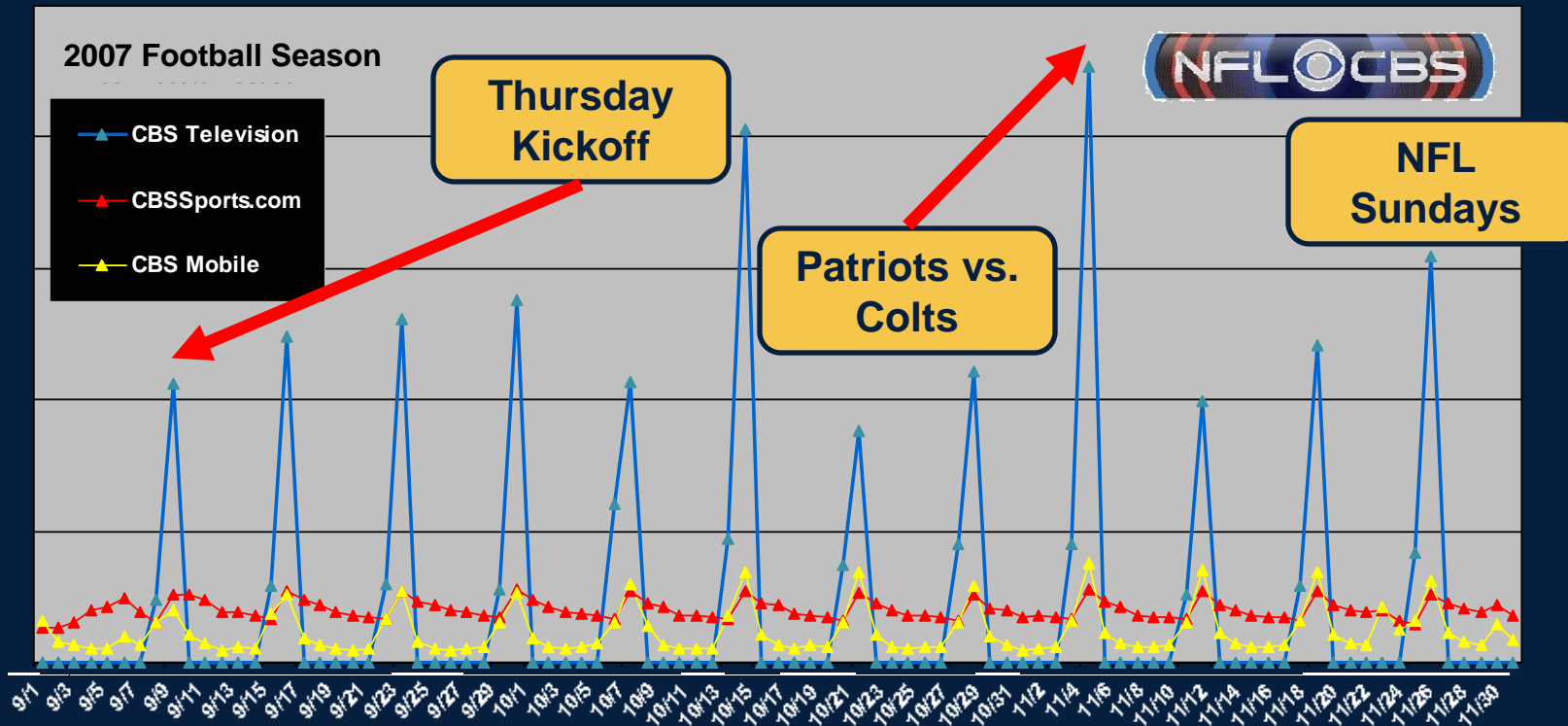


Japan Leads in Mobile Internet Usage – Mobile Nearly Matches PC

Japan Internet Users by Access Device



TV + Internet + Mobile (CBS) – Complementary Platforms



- **Plasma Screen TV** – HD Quality Event
- **PC Screen** – Fantasy, Stats, and Injury Reports
- **Mobile Screen** – Highlights, Scores

Technology / Internet

3) Emerging Markets –
Pacing next wave of technology adoption – leading players in
many emerging markets aren't the usual suspects...

Broadband + Mobile + Internet = Especially High Global Growers

Category	2002 Y/Y Growth Rate	2007 Y/Y Growth Rate	Global Market Size	2007 Net Additions
Broadband Subscribers	78%	23%	349MM	64MM
Mobile Subscribers	20	20	3,319MM	563MM
Internet Users ⁽¹⁾	26	16	1,352MM	182MM
Financial Cards ⁽²⁾	12	11	8,016MM	804MM
Installed PCs	12	8	900MM	66MM
Cable / Satellite TV Subscriptions	8	6	761MM	40MM
GDP per Capita	2	3	22K	1K
Population	2	1	6,501MM	77MM
Telephone Lines	5	-0	1,277MM	-4MM

Top 10 Emerging Markets to Surpass Top 10 Developed Markets in Internet Users in 2008

Top 10 Emerging Markets vs. Top 10 Developed Markets – Internet Users



Note: Emerging / developed markets as defined by IMF; Top 10 chosen based on largest GDP.
 Top 10 emerging markets: China, India, Russia, Brazil, Mexico, Turkey, Indonesia, Iran, Poland, and Saudi Arabia;
 Top 10 developed markets: U.S., Japan, Germany, U.K., France, Italy, Spain, Canada, South Korea, and Australia;
 Source: IMF, ITU, Morgan Stanley Research.

Internet User Net Additions – China, Brazil, Pakistan, Columbia, India, Iran, Russia Impressive

Rank	Country	2007 Net Internet Users Added (000's)	2007 Y/Y Growth	Penetration Level
1	China	73,000	53%	16%
2	United States	9,800	5	73
3	Brazil	7,400	17	26
4	Pakistan	5,500	46	11
5	Colombia	5,395	80	25
6	India	5,000	7	7
7	Iran	5,000	28	32
8	Russia	4,311	17	21
9	Germany	3,900	10	52
10	France	3,553	12	55
11	Vietnam	3,188	22	21
12	Canada	3,000	12	85
13	Egypt	2,620	44	12
14	Indonesia	2,424	23	6
15	United Kingdom	2,400	6	66
16	Mexico	2,248	11	22
17	Thailand	2,003	18	20
18	Nigeria	2,000	25	7
19	Poland	1,915	14	42
20	Venezuela	1,580	38	21

Mobile Subscriber Net Additions –

Pakistan = 226% more than USA, Indonesia = 33% more than USA, Iran just 5% less than USA

Rank	Country	2007 Net Mobile Subs Added (000's)	2007 Y/Y Growth	Penetration Level ⁽¹⁾
1	China	86,228	19%	41%
2	India	67,570	41	21
3	Pakistan	44,346	129	50
4	Brazil	21,062	21	64
5	Russia	19,326	13	120
6	Indonesia	18,032	28	36
7	United States	13,596	6	85
8	Iran	12,910	77	42
9	Egypt	12,046	67	41
10	Germany	11,499	13	118
11	Mexico	11,237	20	65
12	Thailand	10,654	26	78
13	Turkey	9,313	18	90
14	Argentina	8,891	28	103
15	Saudi Arabia	8,718	44	117
16	Vietnam	8,225	53	28
17	Nigeria	8,073	25	28
18	Philippines	7,306	17	57
19	Peru	6,645	76	55
20	Algeria	6,565	31	80

Closing Thoughts

1) Companies with cogent business models that provide consumer value should survive / thrive – consumers need value more than they have needed it in a long time...and the Internet should be the best place to find it...

Lots of Retail Share to Gain

USA Online Penetration = 6% and Rising

Categories' Online Penetration of US Retail Market, 2007

>20%	10 - 20%	<10%
Computer products 45%	Toys / video games 19%	Home furnishings 9%
Other event tickets 27%	Baby products 19%	Cosmetics / fragrances 9%
Books 24%	Consumer electronics 18%	Sporting goods / apparel 8%
Music / video 24%	Office supplies 13%	OTC meds / personal care 6%
Gift cards / certificates 21%	Flowers / cards 12%	Appliances / tools 5%
	Jewelry 11%	Pet supplies 4%
	Apparel / footwear 10%	Auto / auto parts 2%
	Movie tickets 10%	Food / beverage / grocery 1%

Amazon.com Should Continue to Gain Share

High Customer Satisfaction / Recommendation Engine / Impressive Metrics

Amazon.com vs. US Retail E-Commerce Sales⁽¹⁾



Amazon.com Key Operating Metrics

	CQ4:07	CQ1:08	CQ2:08	CQ3:08
Revenue	\$5,673	\$4,135	\$4,063	\$4,264
Y/Y Growth	42%	37%	41%	31%
Active Customers	76	79	82	85
Y/Y Growth	19%	19%	18%	17%
TTM Revenue per Active Customer	\$195	\$202	\$210	\$215
Y/Y Growth	17%	17%	19%	18%
Total Units	241	196	190	203
Y/Y Growth	33%	31%	32%	30%

(All metrics in MMs, except for TTM Revenue per Active Customer)

Lots of Ad Share to Gain

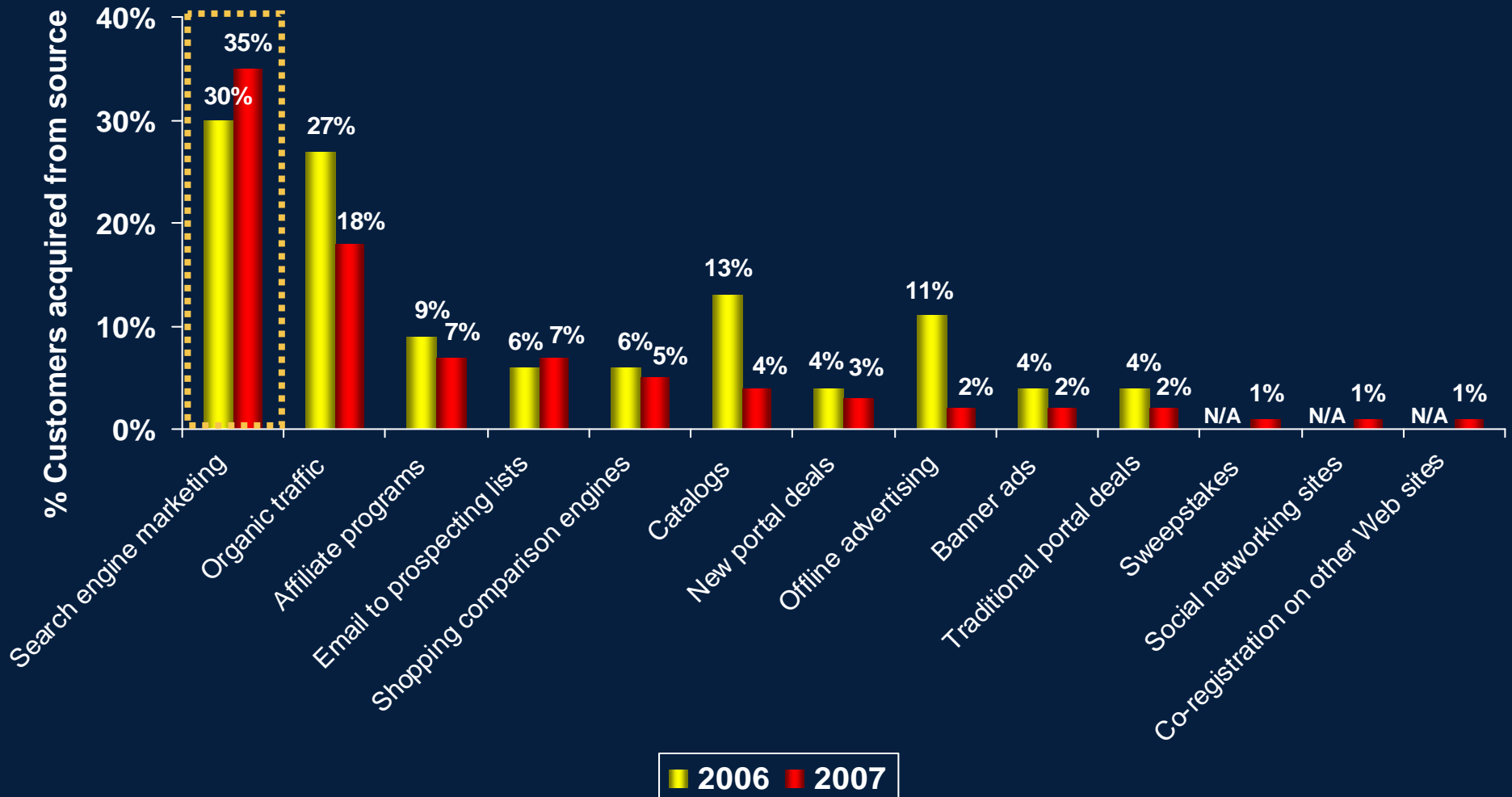
\$288 Per Home vs. \$818 for Newspapers Implies Upside

Medium	2007 Advertising Spending (\$B)	Households (MM)	Ad Spending / Household (\$)
Direct Telephone	\$110	107	\$1,032
Promotions	116	115	1,011
Newspapers	46	56	818
Classifieds	15	56	260
Direct Mail	61	114	532
Broadcast TV	44	112	390
Cable TV	27	80	327
Internet / Online	21 ↑	71 ↑	288 ↑
Radio	20	113	172
Yellow Pages	16	114	141
Outdoor	7	114	63
Total	\$469		\$4,774
Average	47		477

Newspapers include Classifieds. Promotions (\$116B) include: incentives (\$30B), promotional products (\$27B), point-of-purchase (\$19B), specialty printing (\$9B), coupons (\$7B), premiums (\$7B), promotional licensing (\$7B), promotional fulfillment (\$6B), product sampling (\$2B), and in-store marketing (\$2B). Households may use multiple advertising mediums.

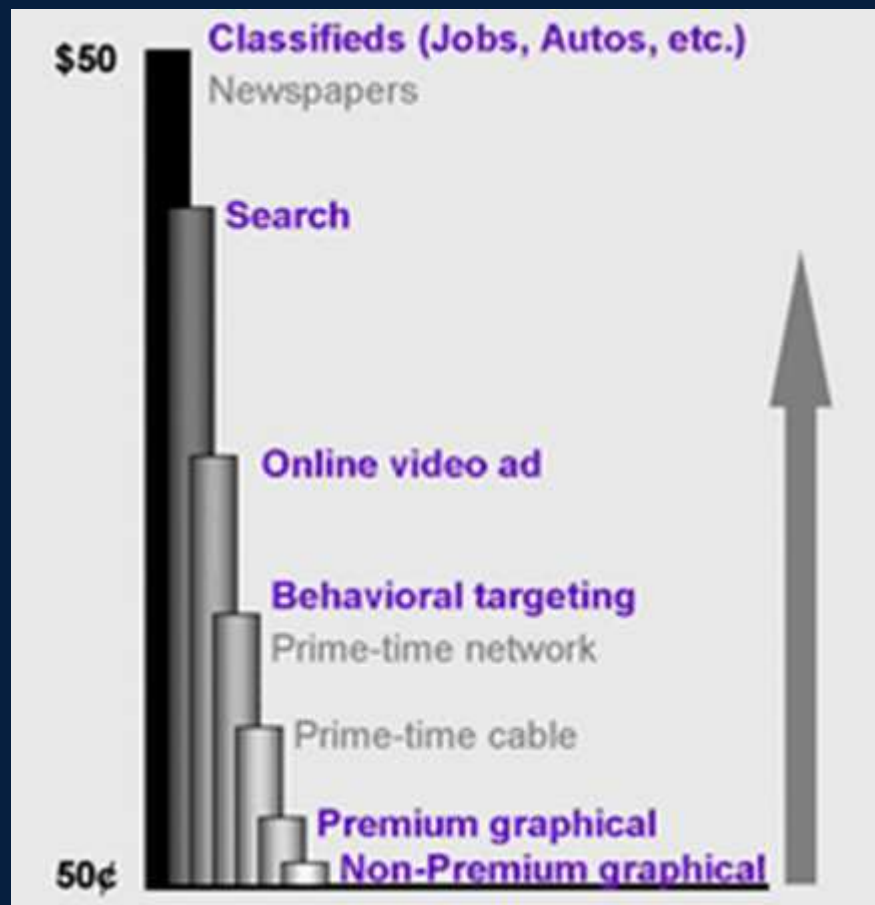
Search Should Continue to Become More Important – 34% Y/Y Google Query Growth (CQ3:08)

% of New Online Customers for Online Retailers / Marketing Spend Mix



While CPMs / CPCs May be Under Near-Term Pressure, If Targeting / ROI Continue to Improve (as they should) There Should Be Long-Term Upside

Estimated CPMs

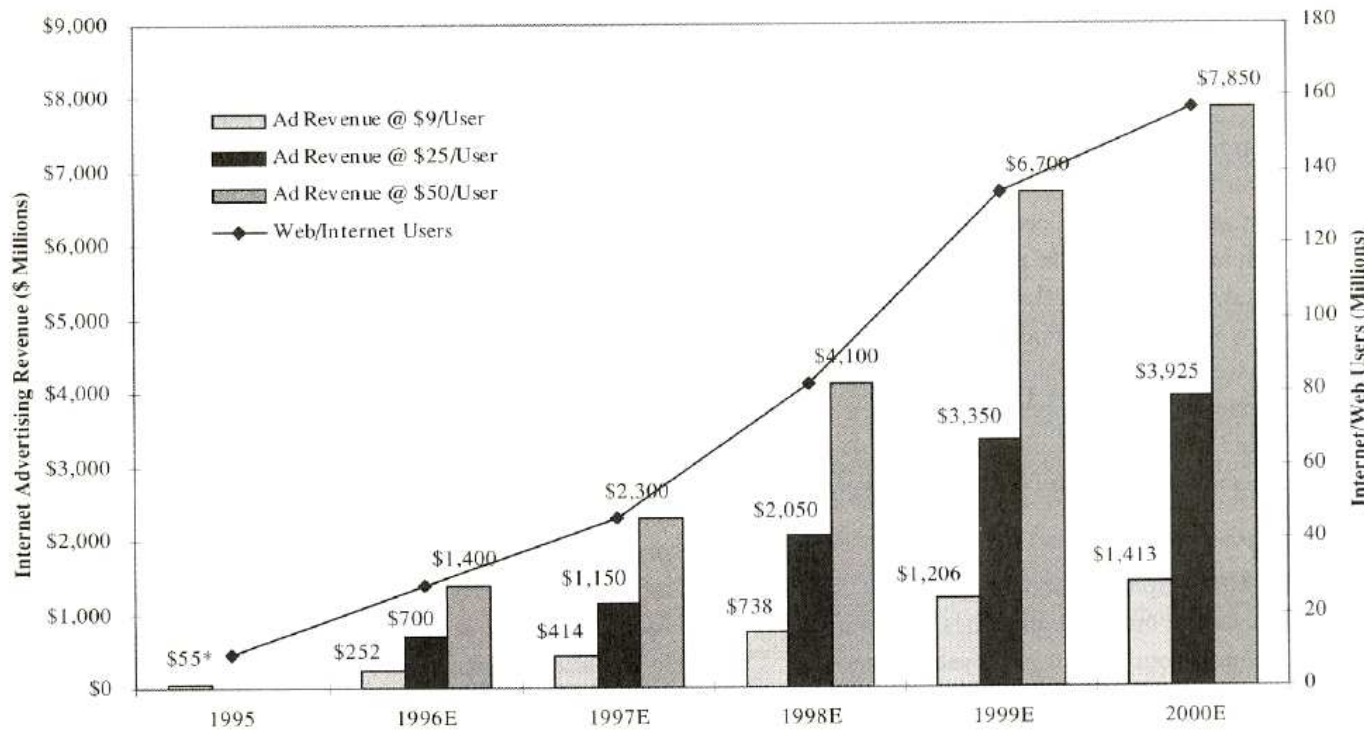


Best News = History Proves That Ads Follow Eyeballs, It Just Takes Time

1996 – Morgan Stanley Global Estimates in 'The Internet Advertising Report'

2007 – We're @

Estimated Web Users vs. Advertising Revenue, Using Various Steady-State Assumptions, 1995–2000E



Source: Morgan Stanley Technology Research.

* 1995 contains actual revenue, as reported by Jupiter Communications.

E = Morgan Stanley Technology Research Estimate.

Internet Users:

1.35B⁽¹⁾

Online Ad
Revenue:

\$41B⁽²⁾

Ad Revenue
per User:

\$30⁽³⁾

Morgan Stanley

Note: (1) ITU, Morgan Stanley Research estimate, comScore reports a lower number for global unique visitors due to their sampling method;

(2) ZenithOptimedia; (3) Using comScore's #s, global online ad revenue per unique user would have been ~\$53;

Source: ITU, ZenithOptimedia, Morgan Stanley Research.

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	Count	% of Total	Count	% of Total IBC	% of Rating Category
Overweight/Buy	869	39%	275	42%	32%
Equal-weight/Hold	983	44%	286	44%	28%
Underweight/Sell	403	18%	89	14%	22%
Total	2,255		650		

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