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## Industry Overview

March 4, 2003

## *March 2003 — An Update From the Digital World*

GICS SECTOR CONSUMER DISCRETIONARY	
US Strategist Weight	13.3%
S&P 500 Weight	13.3%

- Residential broadband may have finally hit critical mass**  
 In CQ4:02, a record 1.9MM+ new broadband subscribers came online in the US, bringing the total to 17MM+ (up 57% Y/Y), or 17%+ of households. Global subscriber count appears to be at least 44MM and growing fast. Note that the active user level often exceeds the subscriber level owing to multiple users per subscriber account.
- We see an emerging category of “power consumers”**  
 Of the estimated 550–600MM Internet users worldwide, an emerging group of 10–44MM users can be characterized as “power consumers,” based on their adoption and use of some key services and technologies.
- Broadband trends help explain strong growth in CQ4:02 e-commerce retail sales**  
 e-commerce retail sales were \$14B in CQ4:02, up 28% Y/Y and up 30% Q/Q, according to recent US Department of Commerce data.
- Our Internet & PC Applications Software Industry View is Attractive**  
 We continue to believe that, at the margin, online is gaining share from offline, that this will occur for some time to come, and that this should continue to benefit the Internet leaders. So far, it appears that trends in 2003 have been strong.

## March 2003 — An Update From the Digital World

### Updates from the Digital World — An Overview

We published our first “Digital World” report in December, 2002. We thought that there were some major events taking place related to the Internet that were underappreciated. In that report, we focused on online vs. offline momentum related to expanded global distribution, lower relative pricing related to transparency and the ramp in the sale of used goods, and the rising impact of replacement products.

In our February, 2003 report, we focused on the relevance and magnitude of sellers migrating online as illustrated by eBay’s momentum.

In this report, we focus on what we believe is one of the answers to the “what just happened to assist such strong momentum in CQ4:02” question. In addition to the improvements in the search/find/obtain (SFO) experiences of the Internet, a key part of the answer may be — broadband.

*Links to aforementioned reports:*

[http://www.morganstanley.com/institutional/techresearch/digital\\_world1202.html](http://www.morganstanley.com/institutional/techresearch/digital_world1202.html)

[http://www.morganstanley.com/institutional/techresearch/digital\\_world0203.html](http://www.morganstanley.com/institutional/techresearch/digital_world0203.html)

[http://www.morganstanley.com/institutional/techresearch/digital\\_world0303.html](http://www.morganstanley.com/institutional/techresearch/digital_world0303.html)

[http://www.morganstanley.com/institutional/techresearch/online\\_classifieds1102.html](http://www.morganstanley.com/institutional/techresearch/online_classifieds1102.html)

### Consumer Broadband May Have Hit Critical Mass...

**US.** Our colleagues Rich Bilotti (cable), Simon Flannery (DSL – telecommunications services) and Alkesh Shah (telecommunications and networking equipment) have been building detailed models for broadband deployment for quite some time — in fact, Rich has earned himself the nickname “Broadband Bilotti.” Based on their data, in CQ4:02, a record 1.9MM+ new broadband subscribers came online in the US (1.4MM+ cable modem subscribers plus 511K+ DSL subscribers).

There are two keys here: First, aggregate deployments were at a record level (and up 57% Y/Y and 13% Q/Q in the quarter) — a nice data point in a challenging economic environment; second, there are now 17MM+ broadband customers (largely consumers) in the US, or about 17%+ of households — implying to us that residential broadband may have finally hit critical mass.

*Internet – March 4, 2003*

We have been waiting so long for this to happen that we hardly noticed it when it did.

Regarding DSL, Simon Flannery believes that several factors may drive more rapid deployment by the Bells in 2003. The recent FCC ruling regarding line sharing should encourage investment, with less fear of cannibalization. The Bells are also seeing their DSL cost structures improving, making the economics somewhat more attractive. Qwest recently announced a 20% expansion to its DSL footprint, as the Bells are increasingly putting DSL in bundles in an effort to defend their core business against attack from wireless, cable, and UNEP competitors.

In addition, favorable pricing trends may be helping spur broadband adoption.

**Residential broadband may have finally hit critical mass. We have been waiting so long for this to happen that we hardly noticed it when it did.**

**Japan.** Our Japanese Internet analyst, Yoshiko Motoyama notes that broadband deployment in Japan is growing at a record pace (up 242% Y/Y as of 1/31/03, to 6MM+ accounts in DSL alone), with DSL leading the trend. Key to this development is selectively bold deregulation at the access layer (nationwide dark fiber unbundling, line-sharing, collocation and customer-premise equipment liberalization, etc.), which has introduced an unprecedented level of competition and reduced control by the incumbent. Broadband in Japan should expand at record speeds, as it represents the first cheap fixed-line always-on connection, bundled cheap telephone and other communications services in a country with a history of high-telecommunication costs. Players are exploiting deregulation in introducing innovative multi-access services with different pricing points, which should stimulate further market expansion, in Yoshiko’s view.

**Asia-Pacific.** Based on IDC and Morgan Stanley estimates, our Asia-Pacific team expects total residential broadband to grow 26%, from 14MM subscribers in 2002 to 18MM in 2003. Korea will likely continue to dominate the Asian Pacific broadband market, accounting for 60–65% of total subscribers in the region. Mitchell Kim, our Korean Telecom Analyst, expects VDSL to be the key driver in 2003 for Korea.

Exhibit 1  
**US Broadband Subscriber Data, C2000 – C2003E**

	Metric Share	Quarterly												Annual			
		Q1:00	Q2:00	Q3:00	Q4:00	Q1:01	Q2:01	Q3:01	Q4:01	Q1:02	Q2:02	Q3:02	Q4:02	C2000	C2001	C2002	C2003E
<b>Comcast+AOL Time Warner+Cox+Charter+Cablevision+Adelphia+Insight+Other (Bilotti) - U.S.</b>																	
Cable Modem Subscribers - Top 7 + Other (000's)	100%	2,059	2,435	2,983	3,868	4,784	5,614	6,453	7,342	8,260	9,170	10,217	11,648	3,868	7,342	11,648	16,755
Comcast*	31%	724	841	1,048	1,358	1,671	1,936	2,148	2,421	2,650	2,912	3,253	3,620	1,358	2,421	3,620	5,207
AOL Time Warner (Road Runner)	21%	416	533	669	880	1,100	1,310	1,545	1,783	2,046	2,325	2,151	2,404	880	1,783	2,404	3,435
Cox Communications	12%	260	320	399	482	587	668	779	884	1,001	1,115	1,272	1,408	482	884	1,408	1,975
Charter Communications**	11%	95	122	157	216	305	386	508	608	748	906	1,056	1,224	216	608	1,224	1,881
Cablevision	7%	71	93	140	239	304	368	423	507	560	611	680	770	239	507	770	1,010
Adelphia	5%	50	71	105	149	197	243	315	378	475	483	515	638	149	378	638	1,219
Insight Communications	1%	12	19	24	30	63	73	85	88	95	103	125	145	30	88	145	228
Other	12%	431	436	441	515	557	630	650	675	685	715	1,165	1,438	515	675	1,438	1,800
<b>SBC+Verizon+BellSouth+Qwest (Flannery) - U.S.</b>																	
DSL Subscribers - Top 4 (000's)	89%	536	869	1,214	1,777	2,283	2,618	3,008	3,586	4,059	4,517	5,034	5,545	1,777	3,586	5,545	7,605
SBC	35%	201	399	516	767	954	1,037	1,187	1,333	1,516	1,729	1,955	2,200	767	1,333	2,200	3,180
Verizon	29%	150	221	351	540	720	840	967	1,200	1,350	1,500	1,655	1,803	540	1,200	1,803	2,413
BellSouth	16%	49	74	134	215	303	381	463	621	729	803	924	1,021	215	621	1,021	1,406
Qwest	8%	136	175	213	255	306	360	391	432	464	485	500	521	255	432	521	606
<b>TOTAL ESTIMATED BROADBAND SUBSCRIBERS - U.S. (000's)</b>		<b>2,595</b>	<b>3,304</b>	<b>4,197</b>	<b>5,645</b>	<b>7,067</b>	<b>8,232</b>	<b>9,461</b>	<b>10,928</b>	<b>12,319</b>	<b>13,687</b>	<b>15,251</b>	<b>17,193</b>	<b>5,645</b>	<b>10,928</b>	<b>17,193</b>	<b>24,360</b>
Y/Y Growth		--	--	--	--	172%	149%	125%	94%	74%	66%	61%	57%	--	94%	57%	42%
Q/Q Growth		93%	27%	27%	35%	25%	16%	15%	16%	13%	11%	11%	13%	--	--	--	--
<b>TOTAL ESTIMATED BROADBAND ADDITIONS - U.S. (000's)</b>		<b>1,247</b>	<b>710</b>	<b>893</b>	<b>1,448</b>	<b>1,422</b>	<b>1,165</b>	<b>1,229</b>	<b>1,467</b>	<b>1,391</b>	<b>1,368</b>	<b>1,564</b>	<b>1,942</b>	--	<b>5,282</b>	<b>6,265</b>	<b>7,168</b>
Cable Modem		1,053	377	548	885	916	830	839	889	917	910	1,047	1,431	--	3,474	4,305	5,108
DSL		194	333	345	563	506	335	390	578	474	458	517	511	--	1,809	1,960	2,060

\*ATT and Comcast merger closed in CQ4:02

\*\*CQ4:02 – Morgan Stanley Estimate

Source: Morgan Stanley Research (Rich Bilotti, Simon Flannery)

**Europe.** Our European Internet analyst, Javier Marin conservatively estimates at least 5.3–5.5MM ADSL subscribers and 1.5MM cable modem subscribers in Europe as of the end of 2002. Javier's ADSL estimate excludes the Nordic European countries, where broadband penetration rates are double the 20% of total subscribers rate of the Central and Southern European countries. He notes broadband adoption has significantly accelerated in the last year, with Q/Q growth rates of 20–30% for the market (with 100% Y/Y growth in CQ4:02), versus very low single-digit Q/Q growth figures for narrowband subscribers. He estimates that leading ISPs like T-Online in Germany, Wanadoo in France, Telefonica in Spain, or Seat PG and Italy still have around 75% market share in their respective domestic markets. Most European telco operators are now considering ADSL as an investment priority, and launching their own retail offers (as in the case of BT in the UK, TI in Italy, and Telefonica in Spain), which, we believe, will sustain quarterly broadband market growth figures in the double digits for 2003.

*Based on our colleagues' CQ4 data from the major players in the major markets (US, Japan, Asia-Pacific, and Europe), global broadband subscriber count (largely residential, with cable and DSL deployments) appears to be at least 44MM+, and is growing at a rapid clip.*

### **Broadband Users Spend More Time and Money Online**

We believe that the US residential broadband ramp is part of an important inflection point for Internet usage. Surveys have shown that broadband (versus narrowband) users spend more time and money online, owing in large part to: 1) fast speed, 2) “always-on” functionality, and 3) high user satisfaction.

Specifically, a recent survey of US consumers by Arbitron/Edison Media Research found the following:

1) 73% of home cable modem users and 71% of home DSL users are ‘very satisfied’ with their service, while only 31% of dial-up users are ‘very satisfied;’

2) average time spent online per week broadband users is 13 hours, compared to 8 hours for those with dial-up;

3) residential broadband users spent 64% more purchasing dollars online (to \$868) over the previous 12 months than those with dial-up access.

In addition, per comScore Media Metrix, in January, broadband users accounted for 34% of Internet users in the US and 55% of the time spent online, reinforcing the point that broadband users spend significantly more time online. (comScore Media Metrix estimated that 49MM of the 145MM unique Internet users in the US accessed the Net via broadband). This compares with 31% and 53%, respectively, for October 2002. It is notable that the ramp in broadband usage minutes was especially strong for home users; from October to January, their broadband usage minutes rose 20%, to 35% of total.

Note that comScore Media Metrix estimates that 21% of US Internet users access the Net from both home and work. Global broadband usage, as a percentage of total, is lower than in the US, as 29% (versus 34% in the US) of unique global Internet users accessed the Net via broadband in January 2003.

### **Lots of Compelling Data Points in the 10–44MM+ User Range with Rapid Growth...**

Of the estimated 550–600MM Internet users in the world, we believe there's an emerging group of 10–44MM+ users that can be characterized as power consumers based on their adoption and use of certain key services and technologies (see Exhibit 3). While they currently represent 2–8% of the base of total Internet users, we think this percentage will continue to rise. As this occurs, it should continue to bode well for the growth in Internet usage.

Exhibit 3

### **Power Consumer Data at a Glance, CQ4:02E**

Data	Morgan Stanley Analysts	Estimate	Y/Y Growth
Global broadband subscribers		44MM+	--
<i>US broadband subscribers</i>	<i>Richard Bilotti / Simon Flannery</i>	<i>17MM</i>	<i>+57%</i>
Active Amazon.com customers	Mary Meeker	31MM	+26%
Active eBay customers	Mary Meeker	28MM	+56%
Active WiFi users	Arindam Basu	11MM	+83%
US digital camera installed base	Solin Cho	24MM	+17%
Active portable MP3 users	Rebecca Runkle / Stirling Levy	20MM	+150%+

*Source: Morgan Stanley Research*

**Please see the important disclosures at the end of this report.**

In addition, Yahoo! mentioned at its recent analyst day that it served 70MM (up 385% Y/Y) streaming sessions in the month of January. We believe that these were primarily music videos. We think the number (and growth rate) is very impressive and is symbolic of the growth to come.

Is there a link among these power consumer data points? It's hard to say for sure. But, we think so. We continue to maintain that a variety of positive trends are coming together that, at their essence, both individually and in combination, revolve around a steadily improving and valuable online user experience. But, a key component is simply faster, always-on Internet access, anywhere. In addition, they suggest to us that we may well still be in the early innings of growth for the leading companies. We see the mark of the power consumers in the CQ4 results of the leading Internet companies as well as in aggregate data for e-commerce retail sales.

#### **CQ4 E-Commerce Data Were Impressive, up 28% Y/Y**

Even as traditional retailers were struggling in a weak economy, e-commerce retail sales reached \$14B in CQ4:02, up 28% Y/Y and up 30% Q/Q, according to data released in late February by the US Department of Commerce (DOC). This compares to 34% Y/Y growth in CQ3 and 18% Y/Y growth (and 36% Q/Q) in CQ4:01. For full-year C2002, e-commerce retail sales were \$46B, up 27% Y/Y (an acceleration over 24% Y/Y growth in C2001). Note that this occurred while total retail commerce (offline *plus* online) grew by 4% and 3% in C2001 and C2002, respectively. The DOC does not include travel, financial services, or event ticket sales in either its total retail or its e-commerce calculation.

While e-commerce grew 28% Y/Y, total US retail sales rose only 2% Y/Y in CQ4, meaning that, in addition to

what we believe are market-expanding trends, e-commerce, at the margin, continued to gain share from offline. In CQ4, e-commerce sales were a record 1.65%, compared to 1.34% in CQ3 and 1.31% in CQ4:01. For full-year C2002, e-commerce sales accounted for 1.39% of total retail sales, up from 1.13% in C2001. We expect to see continued share gains by online at the expense of offline.

#### **What Does All This Mean?**

First, the broadband trends reinforce our investment thesis, which can be found on page 8. In addition, for many consumers and SMEs, these trends are positive as they represent opportunities to obtain more for less. And for the Internet leaders that are providing front-ends for searching/finding/obtaining products and information, the opportunities are also compelling, in our view. For certain larger offline businesses they represent increasing, and new forms of, disruptive competition.

*How does all this shake out? Only time will tell. But, in our view, the need for many to adapt to emerging digital-related changes has never been higher.*

#### **Reiteration of a Closing Thought...**

We come back to Jeff Bezos' comment to Chip Bayers of Business 2.0 in a recent interview:

*"People have very little intuition for what it will mean when the top 40% of US households, based on income, have half a dozen computers, all of them connected to the Net, all of them with 'instant-on.' They just don't know how important a part of our daily life the online world will be!"*

Exhibit 4  
**US Department of Commerce — Quarterly Retail Sales Data (\$MM), C1999-C2002**

	CQ1:00	CQ2:00	CQ3:00	CQ4:00	CQ1:01	CQ2:01	CQ3:01	CQ4:01	CQ1:02	CQ2:02	CQ3:02	CQ4:02	C1999	C2000	C2001	C2002
<b>Total US Retail Sales</b>	\$711,600	\$771,691	\$765,536	\$810,311	\$724,224	\$805,245	\$782,088	\$856,285	\$743,810	\$825,243	\$827,461	\$869,588	\$2,868,155	\$3,059,138	\$3,167,842	\$3,266,102
<i>YY Change</i>	-	-	-	3%	2%	4%	2%	6%	3%	2%	6%	2%	-	7%	4%	3%
<i>Q/Q Change</i>	-9%	8%	-1%	6%	-11%	11%	-3%	9%	-13%	11%	0%	5%	-	-	-	-
<b>Total U.S. Retail E-Commerce Sales*</b>	\$5,814	\$6,346	\$7,266	\$9,459	\$8,256	\$8,246	\$8,236	\$11,178	\$9,880	\$10,265	\$11,061	\$14,334	\$15,000	\$28,885	\$35,916	\$45,540
<i>YY Change</i>	-	-	-	73%	42%	30%	13%	18%	20%	24%	34%	28%	-	93%	24%	27%
<i>Q/Q Change</i>	6%	9%	14%	30%	-13%	0%	0%	36%	-12%	4%	8%	30%	-	-	-	-
<b>E-Commerce as a % of Retail Sales</b>	0.82%	0.82%	0.95%	1.17%	1.14%	1.02%	1.05%	1.31%	1.33%	1.24%	1.34%	1.65%	0.52%	0.94%	1.13%	1.39%

\*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.

Source: U.S. Department of Commerce

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**Internet & PC Applications Software****Industry Investment Thesis (Attractive)**

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**We continue to believe that the Internet is still in the early stages of becoming a central communications, information, commerce, and entertainment medium.** We estimate there are 550-600 million Internet users worldwide using the Internet an estimated average of roughly 30 minutes per day. We expect the number of Internet *users* to grow at 10-20% annually for the next several years, with stronger growth in non-US markets. And we estimate that *usage* growth (in part because of ongoing broadband adoption) should continue to be higher, thus, we believe, demonstrating relatively compelling underlying growth trends.

Given this robust underlying growth, we continue to believe that the leading Internet companies should, over time, be able to generate strong double-digit top-line growth, and as the financial models scale towards higher long-term margins, should be able to generate even stronger earnings growth — AKA leverage. If the leaders execute to their opportunities, we believe that the leaders could demonstrate classic growth-stock undervaluation characteristics.

While the general economic environment continues to be challenging — we note that according to our analysis, most GDP forecasts for 2001 were too high by 90%+ AND 97% of the companies in the S&P 500 missed earnings estimates at least once in 1999-2000 — we point out that many of the leading Internet companies are supporting very strong revenue growth, and that CQ4:02 appears to have been a positive inflection point. In C4Q:02, we note that Y/Y growth rates for the Internet leaders were compelling — 100% Y/Y growth for Expedia (70% pro forma with Classic Custom Vacations acquisition), 51% for Yahoo! (34% pro forma with HotJobs acquisition), 89% Y/Y growth for eBay (55% pro forma for PayPal acquisition), and 28% for Amazon.com.

**In general, near term, we remain focused on what we consider to be key underlying positive trends:**

- 1) **The Internet should prove to be the growth distribution channel of the decade** — As companies that benefited from leveraging the PC as their distribution channel — like Microsoft and America Online (AOL, \$11.20, Equal-weight-V) — created significant new businesses and shareholder wealth, we believe an emerging group of still relatively early stage companies should do the same with the Internet.
- 2) **Search/find/obtain (SFO) is becoming a global reality** — Google, eBay (EBAY, \$78.08, Overweight-V), Amazon.com (AMZN, \$22.27, Overweight-V), Yahoo! (YHOO, \$19.87, Overweight-V), Expedia (EXPE, \$68.68, Overweight-V), Microsoft (MSFT, \$23.07, Overweight-V) and Overture have driven this, and it benefits users and vendors as it helps reduce friction and makes inefficient markets more efficient.
- 3) **Broadband (with 44MM+ global consumers as of CQ4:02) has hit critical mass** — The early stage (and strong growth momentum) of consumer broadband adoption, and the powerful usage patterns of broadband (vs. narrowband) users should help pace strong growth for leading beneficiaries.
- 4) **Strong underlying growth rates for global Internet usage/users** — in spite of (and, perhaps, in part, because of) a very challenging economic environment.
- 5) **Online market share gains from offline markets** — such as Expedia in travel and eBay in collectibles. In the US, e-commerce accounts for only 1.65% (and rising) of retail sales.
- 6) **“Mind share” well above “market share” demonstrates growth opportunity** — 550-600 million-plus Internet users and, for example, only 31 million active Amazon.com customers?
- 7) **The consumer seems to be alive and well for key technology-related purchases** — Internet, digital cameras, video games... could the consumer (vs. the enterprise) drive the next leg of technology-related growth and a PC upgrade cycle? In addition, we believe that many **small to medium-sized enterprises (SMEs)** have benefited from the increased usage of the Internet as vendors/users/sellers.
- 8) **Convenience, low (and transparent) prices/pricing, uniquely strong customer service, and extensive selection** have been key factors behind growth in leading online commerce (and information) sites and should continue to spur growth for the leaders. In addition, we believe that positive trends for the ramps in *used* and *replacement* goods continue to be quite strong, assisted by rising user confidence in obtaining these types of goods/services.
- 9) **Online advertising trends could surprise on the upside** in next 6-12 months, and we believe the compelling ROI will become more apparent to advertisers. We believe online advertising (including pay-for-placement) could grow 20-30% in 2003 and accelerate in 2004.

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10) **Handful of industry leaders gaining share** with less competition on almost all fronts.

11) **Operating leverage with inherently scalable models is powerful** — for example, Amazon.com got big fast, spent lots of money, now what? Fixed costs and operating leverage, in our view.

12) **Positive earnings surprises are, more often than not, followed by more of the same...** and improving operating margins and revenue growth acceleration can be found in this group, in our opinion.

Exhibit 5

Overview of Global TMT Markets — Sorted Regionally by Internet Users

(<http://www.morganstanley.com/institutional/techresearch/tmt2002.html>)

MORGAN STANLEY TECHNOLOGY RESEARCH

May 2002

Overview of the Global TMT Markets - Sorted Regionally by Internet Users

Country	2001 Population	2001 GDP per Capita	2001 Telephone Lines	Telephone Line Penetration	2001 Installed PCs	PC Penetration	2001 Mobile Phones	Mobile Phones Penetration	2001 Cable Subscriptions	Cable Penetration	2001 Internet Users	Internet Users Penetration	Credit/Debit Cards	Credit/Debit Card Penetration
	(000's)	(US\$)	(000's)		(000's)		(000's)		(000's)		(000's)		(000's)	
<b>N. America</b>														
USA	278,059	37,884	186,311	67%	177,000	64%	116,700	42%	65,570	66%	149,000	54%	737,000	265%
Canada	31,593	23,434	21,811	69%	12,000	38%	9,900	31%	8,300	74%	13,000	41%	69,000	218%
<b>Total</b>	<b>309,652</b>		<b>208,122</b>		<b>189,000</b>		<b>126,600</b>		<b>73,870</b>		<b>162,000</b>		<b>806,000</b>	
<b>Weighted Average</b>		<b>36,410</b>		<b>67%</b>		<b>61%</b>		<b>41%</b>		<b>66%</b>		<b>52%</b>		<b>260%</b>
<b>Europe</b>														
Germany	83,030	21,032	53,043	64%	25,749	31%	57,300	69%	19,738	58%	23,254	28%	88,000	106%
UK	59,648	23,727	35,046	59%	22,756	38%	47,700	80%	4,269	18%	21,279	36%	83,000	139%
France	59,551	20,389	36,007	60%	19,665	33%	38,600	65%	2,357	11%	14,979	25%	34,000	57%
Italy	57,680	17,559	27,718	48%	9,310	16%	52,200	90%	146	1%	11,011	19%	28,000	49%
Russia	145,470	1,712	34,019	23%	5,500	4%	11,000	8%	3,548	7%	9,000	6%	2,800	2%
Netherlands	15,981	22,074	10,164	64%	7,258	45%	12,600	79%	5,917	88%	6,500	41%	21,000	131%
Spain	40,038	13,550	16,580	41%	4,969	12%	30,600	76%	840	7%	5,900	15%	38,000	95%
Sweden	8,875	25,061	5,961	67%	4,942	56%	7,700	87%	2,111	51%	5,209	59%	4,500	51%
Poland	38,634	4,121	13,520	35%	2,150	6%	10,800	28%	4,137	33%	3,255	8%	3,900	10%
Denmark	5,353	28,924	3,950	74%	2,491	47%	4,000	75%	1,575	67%	3,173	59%	2,900	54%
Belgium	10,259	21,641	5,191	51%	3,050	30%	7,700	75%	3,450	88%	3,000	29%	8,600	84%
Finland	5,176	22,299	2,946	57%	2,144	41%	4,650	90%	987	43%	2,760	53%	6,900	133%
Norway	4,503	33,444	3,684	82%	2,471	55%	3,950	88%	809	44%	2,420	54%	4,700	104%
Austria	8,151	22,307	3,886	48%	2,425	30%	7,100	87%	1,086	35%	2,300	28%	5,900	72%
Switzerland	7,283	31,610	5,286	73%	4,233	58%	5,800	80%	2,555	89%	2,200	30%	5,900	81%
Czech Republic	10,264	4,548	3,956	39%	1,000	10%	7,300	71%	920	24%	1,522	15%	1,800	18%
Ireland	3,841	25,720	2,217	58%	1,552	40%	3,000	78%	628	56%	1,200	31%	4,400	115%
Portugal	10,066	10,002	4,467	44%	950	9%	8,900	88%	887	25%	1,036	10%	9,600	95%
Hungary	10,106	4,463	4,571	45%	950	9%	5,300	52%	1,789	47%	1,000	10%	2,900	29%
<b>Total</b>	<b>583,909</b>		<b>272,210</b>		<b>123,565</b>		<b>326,200</b>		<b>57,749</b>		<b>120,997</b>		<b>356,800</b>	
<b>Weighted Average</b>		<b>14,147</b>		<b>47%</b>		<b>21%</b>		<b>56%</b>		<b>27%</b>		<b>21%</b>		<b>61%</b>
<b>Japan</b>														
Japan	126,772	40,905	77,240	61%	46,000	36%	67,100	53%	10,800	25%	32,560	26%	560,000	442%
<b>Asia Non-Japan</b>														
China	1,273,111	906	166,001	13%	23,364	2%	149,500	12%	83,200	29%	30,000	2%	77,000	6%
South Korea	47,904	11,485	2,245	5%	10,477	22%	30,800	64%	3,361	23%	15,000	31%	64,400	134%
India	1,029,991	498	39,965	4%	5,608	1%	6,700	1%	27,000	37%	9,000	1%	4,000	0%
Australia	19,358	20,964	9,838	51%	8,388	43%	12,100	63%	706	10%	8,500	44%	26,000	134%
Taiwan	22,370	20,887	12,716	57%	4,378	20%	19,700	88%	4,400	73%	7,600	34%	48,420	216%
Thailand	61,798	2,061	5,579	9%	1,646	3%	8,600	14%	152	1%	3,500	6%	17,400	28%
Malaysia	22,229	4,461	4,557	21%	2,227	10%	8,000	36%	50	1%	3,200	14%	5,946	27%
Hong Kong	7,211	26,569	4,378	61%	2,191	30%	5,800	80%	570	28%	2,800	39%	16,950	235%
Indonesia	228,438	860	7,642	3%	1,135	0%	6,600	3%	100	0%	2,500	1%	6,500	3%
Philippines	82,842	976	4,161	5%	1,026	1%	11,100	13%	1,250	15%	2,500	3%	3,400	4%
Singapore	4,300	22,668	2,276	53%	1,736	40%	3,100	72%	300	31%	1,632	38%	7,100	165%
New Zealand	3,864	12,594	1,964	51%	1,201	31%	2,600	67%	30	2%	1,500	39%	4,900	127%
Pakistan	144,617	425	3,506	2%	628	0%	1,300	1%	515	5%	667	0%	0	0%
<b>Total</b>	<b>2,948,033</b>		<b>264,829</b>		<b>64,005</b>		<b>265,900</b>		<b>121,634</b>		<b>88,399</b>		<b>282,016</b>	
<b>Weighted Average</b>		<b>1,354</b>		<b>9%</b>		<b>2%</b>		<b>9%</b>		<b>27%</b>		<b>3%</b>		<b>10%</b>
<b>Lat. America</b>														
Brazil	174,469	3,002	32,777	19%	9,179	5%	28,988	17%	5,362	14%	8,439	5%	86,000	49%
Mexico	101,879	6,627	13,222	13%	5,986	6%	22,058	22%	3,181	17%	3,700	4%	13,200	13%
Argentina	37,385	7,460	5,585	15%	2,750	7%	9,050	24%	1,600	15%	1,350	4%	17,200	46%
Venezuela	23,917	5,652	5,390	23%	2,554	11%	9,149	38%	1,700	43%	1,250	5%	6,200	26%
Colombia	40,349	1,880	8,373	21%	2,176	5%	6,723	17%	3,102	37%	1,215	3%	9,800	24%
Chile	15,328	4,547	3,922	26%	1,515	10%	4,950	32%	945	22%	1,065	7%	3,600	23%
Peru	27,484	1,910	3,381	12%	2,025	7%	4,834	18%	904	27%	855	3%	3,200	12%
<b>Total</b>	<b>420,811</b>		<b>72,650</b>		<b>26,185</b>		<b>85,752</b>		<b>16,794</b>		<b>17,874</b>		<b>139,200</b>	
<b>Weighted Average</b>		<b>4,303</b>		<b>17%</b>		<b>6%</b>		<b>20%</b>		<b>19%</b>		<b>4%</b>		<b>33%</b>
<b>Rest of World (ROW)</b>														
Other	1,335,412	1,782	218,586	16%	1,100	0%	12,000	1%	2,855	3%	25,000	2%	6,677	1%
South Africa	43,586	2,810	5,448	13%	2,679	6%	10,100	23%	621	20%	2,779	6%	22,000	50%
Turkey	66,494	3,013	22,144	33%	3,000	5%	14,000	21%	722	5%	2,000	3%	26,500	40%
Israel	5,938	19,465	2,797	47%	1,864	31%	5,640	95%	387	30%	1,764	30%	2,900	49%
Algeria	31,736	1,811	1,840	6%	223	1%	125	0%	164	5%	1,010	3%	127	0%
Saudi Arabia	22,757	14,019	4,267	19%	1,500	7%	2,100	9%	409	7%	1,000	4%	4,834	21%
Nigeria	126,635	369	521	0%	892	1%	335	0%	271	3%	606	0%	507	0%
Egypt	69,537	1,542	8,122	12%	1,454	2%	2,500	4%	579	4%	550	1%	278	0%
Iran	66,129	1,473	10,296	16%	3,000	5%	1,500	2%	240	3%	168	0%	265	0%
<b>Total</b>	<b>1,768,224</b>		<b>274,021</b>		<b>15,712</b>		<b>48,300</b>		<b>6,247</b>		<b>34,877</b>		<b>64,087</b>	
<b>Weighted Average</b>		<b>1,949</b>		<b>15%</b>		<b>1%</b>		<b>3%</b>		<b>4%</b>		<b>2%</b>		<b>4%</b>
<b>TOTAL</b>	<b>6,157,401</b>		<b>1,169,072</b>		<b>464,467</b>		<b>919,852</b>		<b>287,094</b>		<b>456,707</b>		<b>2,208,103</b>	
<b>Growth Rate</b>	<b>1.3%</b>	<b>1.4%</b>	<b>11%</b>		<b>10%</b>		<b>30%</b>		<b>5%</b>		<b>31%</b>		<b>9%</b>	
<b>Average Weighted Penetration</b>				<b>19%</b>		<b>8%</b>		<b>15%</b>		<b>22%</b>		<b>7%</b>		<b>36%</b>

Population & GDP figures represent data from The US Census Bureau & The CIA World Factbook 2001 -- GDP per Capita is the calculated using this data. Telephone lines represent total (business & commercial) lines in use; source - World Bank, Morgan Stanley estimates. The numbers for Cable Subscribers is based on information from The World Bank, cross referenced with Kagan World Media Ltd.; source - World Bank, Morgan Stanley estimates. Kagan PC numbers represent the raw total (business and commercial) PC figures, both desktop and laptop; source - World Bank, Morgan Stanley estimates. IDC, the Yankee Group. Mobile Phone subscriptions data is sourced from the World Bank, Morgan Stanley estimates. The International Telecommunication Union and IDC. Internet users reflect the number of users accessing the Web (users may share/use multiple devices, users accessing the web from home and work are counted only once); source - Morgan Stanley estimates, IDC, eMarketer, Jupiter Communications. Credit Card figures include debit cards; source - Morgan Stanley estimates, Faulkner & Gray 2000 Global Card Directory, The Nilson Report (DRI/McGraw Hill).

Internet – March 4, 2003

Please see the important disclosures at the end of this report.

## Global Stock Ratings Distribution

(as of February 28, 2003)

Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)		
	Count	% of Total	Count	% of Total IBC	% of Rating Category
<b>Overweight</b>	616	33%	239	38%	39%
<b>Equal-weight</b>	883	47%	289	46%	33%
<b>Underweight</b>	390	21%	104	16%	27%
<b>Total</b>	1,889		632		

Data include common stock and ADRs currently assigned ratings. For disclosure purposes (in accordance with NASD and NYSE requirements), we note that Overweight, our most positive stock rating, most closely corresponds to a buy recommendation; Equal-weight and Underweight most closely correspond to neutral and sell recommendations, respectively. However, Overweight, Equal-weight, and Underweight are not the equivalent of buy, neutral, and sell but represent recommended relative weightings (see definitions below). 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.

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**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, or the relevant country MSCI index, 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, or the relevant country MSCI index, 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, or the relevant country MSCI index, 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.

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

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

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

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