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The (Fat) Tail that Wags the Dog

Demystifying the Stock Market's Performance

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- The S&P Industrial's market-capitalization-weighted ROIC has risen 10 percentage points since 1995.
- Underlying changes in both the returns and composition of the indices render historical relative P/E multiples inappropriate.
- A "fat tail" has emerged in what had been a near-normal distribution of ROICs, driven by "New Economy" businesses.
- The composition of the S&P 500 has changed profoundly in recent years: investors that hope to keep pace with the index need exposure to technology stocks.

Introduction

In 1998, the S&P 500 index outperformed 90% of active money managers for the third straight year. Outperforming the index was particularly challenging for portfolio managers in 1998 as only 28% of the stocks in the S&P 500 appreciated more than the index.

Investors are struggling with two issues in particular. The first is the narrowness of the market—a few large stocks are dictating the performance of the S&P benchmark. The second applies mostly to value investors, who disavow owning technology names. Technology stocks have roared, contributing significantly to the S&P's impressive gains in recent years.

Our analysis suggests that the multiple expansion of many large capitalization growth companies is underpinned by a sharp rise in their returns on invested capital (ROIC). While the market's valuation appears high, market multiples obscure the fact that certain companies have seen *profound* increases in their ROICs while the "average" company has not. Hence, relative P/E multiples—a mainstay on Wall Street—are increasingly misleading.

Why these select companies have seen such dramatic increases in ROIC and *whether or not* those returns are sustainable are obvious questions. We believe the answer lies in an appreciation for tectonic shifts in the U.S. economy: the source of competitive advantage for many businesses is going from capital-based to knowledge-based strategies. As intangible assets are rarely reflected on the balance sheet accurately, some "New Economy" companies have demonstrated extraordinary returns on invested capital. Sustainability of such returns hinges on entry barriers, network economics, customer lock-in, and the power of economic webs.

This report has three parts. First, we document the trend in the market-weighted return on invested capital for the S&P industrials, and show how and why market multiples are less-and-less indicative of economic reality. Second, we discuss the emergence of a "fat tail"—a bump on the right-hand side of a market-wide ROIC distribution. It is this fat tail that is skewing both the performance of the indices and index-based valuation comparisons. Finally, we explore the composition shift in the S&P 500, and speculate about what that shift means for money managers.

Market-Capitalization-Weighted ROIC

Valuation is fundamentally determined by a handful of drivers, including growth in cash flows, returns on invested capital, and sustainability of excess returns. The spread between ROIC and the cost of capital, in particular, correlates highly with stock market valuation. Other issues aside, higher ROICs lead to higher valuations.¹

As S&P indices are market-capitalization weighted, their performance and valuation is biased toward the biggest companies. So while looking at median or mean ROICs for a relevant index is a start, it is not as revealing as the market-capitalization-weighted ROIC.

Table 1 shows *that the market-capitalization-weighted ROIC rose over 10 percentage points, to 25.5%, from 1995 to 1998 for the S&P Industrials*. As important, the difference between the average ROIC and the market-capitalization-weighted ROIC has exploded from 200 basis points to 1300 basis points during the same period. How did this happen? And what does it mean?

¹ "Frontiers of Strategy—Why Strategy Matters," Michael J. Mauboussin and Bob Hiler, Credit Suisse First Boston Equity Research, September 30, 1998.

Table 1
Market-Capitalization-Weighted ROIC

S&P Industrials

Year	Median ROIC	Mean ROIC	Market-Cap Weighted ROIC
1995	11.0%	13.1%	15.3%
1996	10.1	12.5	16.4
1997	10.0	12.4	18.9
1998E	10.0	12.5	25.5
1999E (Y-T-D)	10.0	12.5	26.8
Average	10.2%	12.6%	20.6%

Source: Company published data, CSFB estimates.

It is first important to note that over one-half of the S&P Industrial's market-capitalization-weighted ROIC is derived from four companies: Microsoft, Dell, Coca-Cola, and GE. (See Table 2.) These four companies, which comprised 12.3% of the index weighting at year-end 1998, had an average ROIC of 119%. To understand the surge in market-capitalization-weighted ROIC over the past three years, one need not look further than Microsoft and Dell. Their combined market-capitalization-weighted ROIC went from 0.9% in 1995 to 11.1% in 1998. Amazingly, Microsoft was not included in the S&P 500 until June 1994.

Table 2
Contribution to Market-Capitalization-Weighted ROIC

S&P Industrials, year-end 1998

Company	Market-capitalization weighted ROIC contribution
Microsoft	8.5%
Dell	2.6
Coca-Cola	1.2
GE	0.9
Subtotal of top 4	13.0%
All others (358 companies)	12.5%
Total	25.5%

Source: Company published data, CSFB estimates.

It is broadly acknowledged (and lamented) that large capitalization stocks are pacing the indices (see Table 3). What is not as well appreciated is that these value surges are a direct function of rising ROICs. The market is justifiably top heavy, at least if current ROICs are sustained.

Table 3
Relative Performance of S&P 500 Capitalization Sectors

S&P relative performance by quintile

	1994	1995	1996	1997	1998
1 st quintile (largest)	0.8	1.3	3.3	2.9	9.1
2 nd quintile	(0.9)	(2.0)	(4.2)	(2.3)	(6.5)
3 rd quintile	(1.3)	(6.1)	(4.1)	(7.8)	(20.6)
4 th quintile	(2.4)	(12.1)	(5.3)	(10.9)	(27.2)
5 th quintile (smallest)	1.1	(12.5)	(1.7)	(11.6)	(21.8)

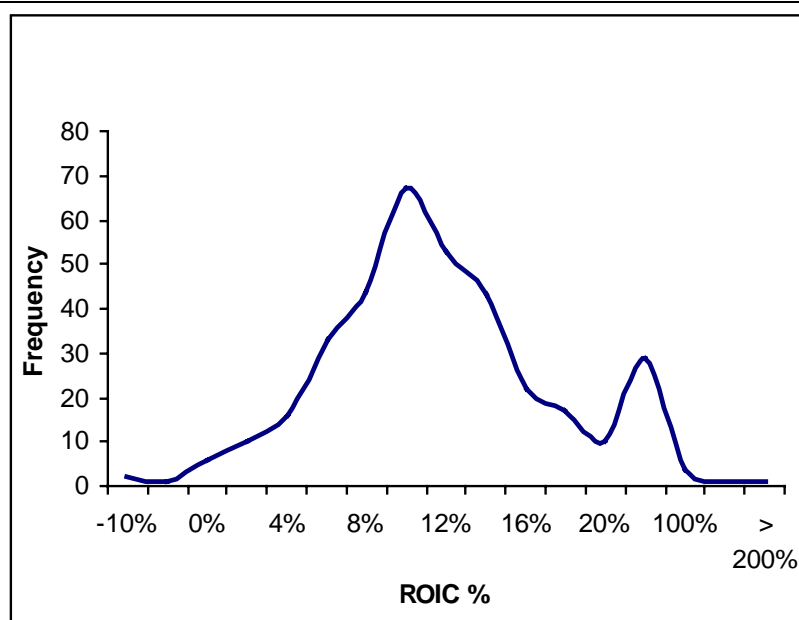
Source: CSFB estimates.

One key implication of this analysis is that the warranted P/E for the market—even without consideration of lower interest rates—is justifiably much higher today than it was earlier this decade. Further, these data suggest that P/E comparisons relative to the market are suspect. In fact, *the use of relative multiples is a de facto comparison to market-dominant companies generating extraordinary returns and growth.*

The (Fat) Tail that Wags the Dog

The above discussion can be recast visually by looking at a frequency distribution of ROICs (see Figure 1). What is immediately clear is that there is a fat tail on the right-hand side of the distribution. This fat tail contains many of the high ROIC businesses that are driving the performance and valuation of the market.

Figure 1
Frequency Distribution of Return on Invested Capital for the S&P Industrials
1998E

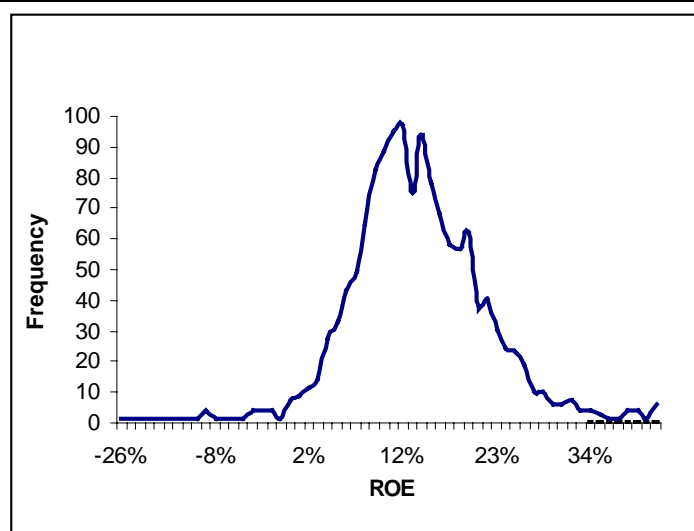


Source: CSFB estimates.

It is interesting to note that no such fat tail existed historically. In what stands as one of the best books ever written on shareholder value, William Fruhan provided the return on equity (ROE) distributions for over 1,400 non-financial companies in the 1966-1975 period (see Figure 2). While the overall shape of the distribution is very similar to that of today, there were no companies earning the outsized returns we now see.²

² Although ROE is not directly translatable into ROIC, Fruhan actually adjusted the ROEs to remove the deleterious effect of excess cash. There were no material differences, making the ROE/ROIC comparisons reasonable.

Figure 2
Frequency Distribution of Return on Equity for 1,448 Compustat Companies
 1966



Source: *Financial Strategy*, William E. Fruhan, Jr., 1979.

Some market pundits have compared today's strong-performing large capitalization stocks with the Nifty Fifty from the early 1970s. However, we find that the comparison is somewhat superficial, if only based on return measures. We estimate that the average ROE for the Nifty Fifty was about 19%, sharply lower than the 32% market-capitalization-weighted ROIC of the top 50 stocks in the S&P Industrials for 1998. (See Appendix A.)

How did the fat tail emerge? We believe it is an outgrowth of a fundamental, ongoing shift in the United States from the "Old Economy" to the "New Economy." In plain language, this means that the economy is moving away from industries where physical capital or resources are the foundation for competitive advantage toward businesses where knowledge, or intellectual capital, is the driver of advantage.

The implication is straightforward: with only modest invested capital requirements, many New Economy companies generate higher ROICs than their capital-laden Old Economy brethren. Accordingly, New Economy companies often deserve higher-than-average multiples, even after adjusting for options liability and greater industry instability.

Further, we believe that the "mental models" applied to understand traditional businesses do a poor job of explaining the dynamics of New Economy companies.³ For example, some businesses enjoy increasing, rather than decreasing, returns as the result of positive feedback mechanisms. Microsoft's dominance of PC operating systems is a good case in point.

The "winner-take-all" outcome of many technology markets has only recently been well documented. Updated mental models are useful for understanding not only how and why the fat tail emerged but whether or not these high returns are sustainable.

³ "Frontiers of Strategy—On the Shoulders of Giants," Michael J. Mauboussin and Bob Hiler, Credit Suisse First Boston Equity Research, November 18, 1998.

S&P 500—Technology Is Too Large to Ignore

The composition of the S&P 500 has changed dramatically over the years. There has been a pronounced shift away from Old Economy businesses to New Economy industries (see Tables 4 and 5). Technology—which only represented about 5% of the index 35 years ago—now represents over 20%. Notably, the technology weight was less than 10% as recently as 1993.

Table 4
Weightings of Selected S&P 500 Industries
1998 versus 1964

Sector	1964	1998
Utilities	19.2%	3.1%
Energy	17.8	5.7
Basic Materials	16.5	3.1
Technology	5.5	19.4

Source: Standard & Poor's.

Value investors typically cite two objections to investing in technology stocks. The first is that they do not understand technology—it is outside their circle of competence. Warren Buffett is perhaps the best-known value investor to indulge in this line of reasoning. We believe that investors should strive to be adaptive. Technology is profoundly changing many industries, and we believe it will be difficult to generate above-market-average returns without a firm grasp of key strategic and financial drivers. Technology is simply too large, and too important, to ignore.

Second, value investors insist that current technology valuations cannot be supported. While we are not here to justify present valuations, we believe the “over-valued” case stems more from a lack of appreciation of business models than undue optimism. The challenge of valuing technology companies is further compounded by the winner-take-all nature of some markets. Within some sectors, leading companies enjoy valuation premiums 5 to 10 times their less fortunate competitors.

Table 5
Top 20 Companies in the S&P 500 Index
 1998 versus 1964

1964			1998		
Company	% of mkt cap	Cum %	Company	% of mkt cap	Cum %
AT&T	9.1%	9.1%	Microsoft	3.5%	3.5%
General Motors	7.3	16.4	General Electric	3.4	6.9
Exxon	5.0	21.4	Intel	2.0	8.9
IBM	3.7	25.1	Wal-Mart	1.8	10.8
Texaco	3.1	28.2	Exxon	1.8	12.6
DuPont	2.9	31.1	Merck	1.8	14.4
Sears Roebuck	2.5	33.6	IBM	1.8	16.1
General Electric	2.2	35.8	Coca-Cola	1.7	17.8
Gulf	1.6	37.4	Pfizer	1.7	19.5
Eastman Kodak	1.4	38.8	Cisco	1.5	20.9
Chevron	1.4	40.2	Lucent	1.5	22.4
Mobil	1.2	41.4	Bristol Myers Squibb	1.4	23.8
Royal Dutch	1.1	42.6	AT&T	1.4	25.1
Union Carbide	1.0	43.6	MCI Worldcom	1.3	26.5
Shell	0.9	44.5	Philip Morris	1.3	27.8
Proctor & Gamble	0.9	45.4	Proctor & Gamble	1.2	29.0
General T&T	0.8	46.3	Johnson & Johnson	1.2	30.2
Amoco	0.8	47.1	SBC Communications	1.1	31.3
MMM	0.8	47.8	BankAmerica	1.1	32.3
Ford	0.7	48.6	Royal Dutch	1.0	33.4

Source: *Stocks for the Long Run* by Jeremy Siegel, CSFB estimates.

Conclusion

Beating the S&P 500 index is always challenging for a money manager. The task is even more daunting without an appreciation of the key performance drivers of the indices. This report provides some insights about the market's past performance—and why it may continue in the future.

N.B.: CREDIT SUISSE FIRST BOSTON CORPORATION may have, within the last three years, served as a manager or co-manager of a public offering of securities for or makes a primary market in issues of any or all of the companies mentioned. Closing prices are as of February 1, 1999:

Abbott Laboratory (ABT, 45.81, Not Rated)	Intel (INTC, 137.88, Buy)
Air Touch Communications (ATI, 96.31, Buy)	J.C. Penney (JCP, 39.00, R)
American Express (AXP, 102.79, Buy)	Johnson & Johnson (JNJ, 83.69, Not Rated)
American Home Products (AHP, 58.13, Not Rated)	Kmart Corporation (KM, 17.56, Hold)
Ameritech (AIT, 63.00, Buy)	Lubrizol Corporation (LZ, 21.38, Buy)
AMP Incorporated (AMP, 52.63, Not Rated)	Lucent (LU, 110.63, Strong Buy)
Anheuser-Busch, Incorporated (BUD, 70.69, Strong Buy)	McDonald's (MCD, 79.38, Strong Buy)
AT&T (T, 93.69, R)	MCI Worldcom (WCOM, 80.75, Strong Buy)
Avon Products (AVP, 36.94, Buy)	Merck (MRK, 146.94, Buy)
BankAmerica (BA, 34.06, Hold)	MGIC Investment Corporation (MTG, 36.63, Not Rated)
Bell Atlantic (BEL, 59.50, Hold)	Microsoft (MSFT, 172.94, Strong Buy)
Bell South (BLS, 45.13, Buy)	MMM (MMM, 77.63, Not Rated)
Black and Decker Corporation (BDK, 53.00, Buy)	Mobil (MOB, 86.00, Buy)
Bristol Myers Squibb (BMJ, 128.81, Buy)	Oracle Systems (ORCL, 59.13, Buy)
Chevron (CHV, 73.69, Hold)	PepsiCo (PEP, 38.13, Buy)
Cisco (CSCO, 115.00, Strong Buy)	Pfizer (PFE, 132.75, Hold)
Coca-Cola (KO, 64.06, Buy)	Philip Morris (MO, 46.00, Buy)
Compaq Computer (CPQ, 46.88, Buy)	Polaroid (PRD, 17.06, Hold)
Dell Computer (DELL, 108.00, Strong Buy)	Proctor & Gamble (PG, 90.63, Buy)
Dow Chemical Company (DOW, 88.06, Hold)	Revlon, Incorporated (REV, 16.44, Hold)
DuPont (DD, 50.94, Hold)	Royal Dutch (RD, 41.38, Hold)
Eastman Kodak (EK, 65.75, Buy)	SBC Communications (SBC, 52.56, Buy)
Eli Lilly (LLY, 93.25, Buy)	Schering Plough (SGP, 54.50, Buy)
EMC Corporation (EMC, 107.44, Buy)	Schlumberger, Limited (SLB, 47.63, Buy)
Exxon (XON, 69.63, Hold)	Sears Roebuck (S, 40.06, Hold)
Ford (F, 60.75, Hold)	Shell (SC, 31.31, Hold)
General Electric (GE, 102.19, Buy)	Time Warner (TWX, 62.31, Buy)
General Motors (GM, 93.38, Buy)	Texaco (TX, 46.75, Hold)
Gillette (G, 59.19, Buy)	Texas Instruments (TXN, 98.79, Buy)
GTE (GTE, 66.94, Hold)	Tyco International (TYC, 75.06, R)
Hewlett-Packard (HWP, 81.94, Buy)	Wal-Mart (WMT, 84.50, Buy)
Home Depot (HD, 59.13, Buy)	Walt Disney (DIS, 33.56, Buy)
IBM (IBM, 179.75, Buy)	Warner Lambert (WLA, 73.69, Hold)

Appendix A

Table 6
Top 50 Companies in the S&P Industrials
 year-end 1998

Company	Market Value Year End 1998	% of Top 50 S&P Co's by Mkt. Val.	ROIC 1998E	% S&P (x) ROIC
MSFT	345,055	6.69%	188%	12.57%
GE	333,307	6.47%	20%	1.28%
INTC	197,644	3.83%	31%	1.17%
WMT	181,073	3.51%	15%	0.51%
XON	177,767	3.45%	8%	0.29%
MRK	174,204	3.38%	26%	0.89%
IBM	171,995	3.34%	8%	0.28%
KO	164,970	3.20%	54%	1.72%
PFE	162,224	3.15%	21%	0.65%
CSCO	145,994	2.83%	19%	0.53%
LU	144,443	2.80%	10%	0.27%
BMJ	132,952	2.58%	24%	0.61%
T	132,840	2.58%	7%	0.19%
WCOM	131,295	2.55%	3%	0.07%
MO	130,182	2.53%	19%	0.48%
PG	121,071	2.35%	17%	0.41%
JNJ	112,806	2.19%	19%	0.42%
SBC	104,891	2.04%	8%	0.17%
RD	102,658	1.99%	8%	0.16%
LLY	97,733	1.90%	18%	0.34%
BLS	97,655	1.89%	12%	0.22%
DELL	93,021	1.80%	212%	3.82%
HD	90,180	1.75%	15%	0.25%
BEL	85,107	1.65%	8%	0.14%
SGP	81,218	1.58%	32%	0.50%
TWX	75,096	1.46%	4%	0.06%
ABT	74,414	1.44%	19%	0.27%
AHP	74,303	1.44%	12%	0.17%
F	71,716	1.39%	14%	0.19%
CPQ	71,400	1.39%	51%	0.71%
AIT	69,938	1.36%	16%	0.21%
HWP	69,365	1.35%	15%	0.20%
MOB	67,910	1.32%	10%	0.14%
GTE	62,674	1.22%	12%	0.14%
DIS	62,130	1.21%	9%	0.11%
WLA	61,700	1.20%	16%	0.19%
PEP	60,332	1.17%	13%	0.15%
DD	59,726	1.16%	9%	0.11%
AN	57,160	1.11%	10%	0.11%
CHV	54,109	1.05%	10%	0.10%
UN	53,096	1.03%	10%	0.11%
G	53,039	1.03%	17%	0.18%
MCD	51,964	1.01%	10%	0.10%
GM	46,876	0.91%	3%	0.03%
TYC	44,255	0.86%	5%	0.04%
EMC	42,657	0.83%	33%	0.27%
ATI	41,514	0.81%	9%	0.07%
ORCL	41,388	0.80%	44%	0.35%
XRJ	38,671	0.75%	10%	0.07%
MOT	36,648	0.71%	9%	0.06%
Total	5,154,365 (a)	100.00%	23% (b)	32% (c)

(a) Sum of the market capitalization of the top 50 companies in the S&P Industrials.

(b) Arithmetic mean of the 1998E ROIC for these companies.

(c) Market weighted ROIC for these companies.

Source: FactSet, CSFB estimates.

Table 7
Return on Equity for “Nifty Fifty” Stocks
 1972

Company Name	Return on Equity
Emery Air Freight Corp.	33.8%
Avon Products Inc.	33.0%
Louisiana Land & Exploration	28.4%
American Home Products Corp.	25.7%
Merck & Co. Inc.	24.4%
Schering Corp.	23.1%
Coca-Cola Co.	22.8%
Gillete Co.	22.0%
Lilly Eli & Co.	20.4%
AMP Inc.	20.4%
Int'l Flavors and Fragrances	20.0%
Xerox Corp.	19.9%
Eastman Kodak Co.	19.8%
Penney J.C. Inc.	18.7%
Philip Morris Cos. Inc.	18.6%
Lubrizol Corp.	18.5%
McDonald's Corp.	18.3%
Minnesota Mining and Manufacturing Co.	18.2%
Procter & Gamble Co.	17.6%
Chesebrough Ponds	17.4%
General Electric Co.	17.2%
Heublein Inc.	17.1%
International Business Machines	16.9%
Bristol-Myers	16.9%
Anheuser - Busch Inc.	16.6%
Johnson and Johnson	16.6%
Sears Roebuck & Co.	16.4%
Pepsico Inc.	16.3%
Revlon Inc.	16.0%
American Express Co.	15.9%
Black and Decker Corp.	15.4%
Halliburton Co.	15.1%
Pfizer Inc.	15.0%
Dow Chemical Co.	14.3%
Texas Instruments	13.0%
Baxter Labs	11.6%
Disney, Walt Co.	8.8%
Polaroid Corp.	7.4%
Upjohn Co.	NA
Squibb Corp.	NA
Simplicity Patterns	NA
Schlumberger Ltd.	NA
Schlitz Joe Brewing Co.	NA
M.G.I.C Investment Corp	NA
Kresge (S.S.) Co. (Kmart)	NA
Int'l Telephone and Telegraph Corp.	NA
First National City Corp.	NA
Digital Equipment Corp.	NA
Burroughs Co.	NA
American Hospitality Supply Corp.	NA
Average ROE	18.6%

Source: *Financial Strategy*, William E. Fruhan, Jr., 1979.

Table 8

Market-Capitalization-Weighted Return on Capital for the S&P Industrials

includes the 360 still extant companies that used to comprise the year-end 1997 S&P Industrials Index; prices as of 1/22/99

Rank	Company	Market Value	% of S&P	ROIC 1998E	% of S&P (x) ROIC	Rank	Company	Market Value	% of S&P	ROIC 1998E	% of S&P (x) ROIC
1	MSFT	393,882	5.12%	188%	9.61%	61	PNU	28,864	0.38%	5%	0.02%
2	GE	324,525	4.22%	20%	0.83%	62	WAG	28,753	0.37%	10%	0.04%
3	INTC	222,545	2.89%	31%	0.89%	63	VIAB	28,607	0.37%	2%	0.01%
4	IBM	183,772	2.39%	8%	0.20%	64	AMGN	27,995	0.36%	29%	0.11%
5	WMT	175,792	2.29%	15%	0.33%	65	KMB	27,259	0.35%	11%	0.04%
6	XON	172,905	2.25%	8%	0.19%	66	SLB	27,227	0.35%	16%	0.06%
7	MRK	172,802	2.25%	26%	0.59%	67	TXN	27,161	0.35%	8%	0.03%
8	CSCO	159,365	2.07%	19%	0.39%	68	CA	26,274	0.34%	22%	0.07%
9	T	154,432	2.01%	7%	0.15%	69	DH	25,981	0.34%	9%	0.03%
10	KO	151,582	1.97%	54%	1.06%	70	UTX	25,758	0.33%	11%	0.04%
11	PFE	151,193	1.97%	21%	0.41%	71	EMR	25,390	0.33%	14%	0.05%
12	LU	140,291	1.82%	10%	0.18%	72	CBS	25,155	0.33%	3%	0.01%
13	WCOM	135,184	1.76%	3%	0.05%	73	CMCSK	23,463	0.30%	3%	0.01%
14	BMJ	121,154	1.57%	24%	0.37%	74	MTC	23,338	0.30%	8%	0.02%
15	PG	114,690	1.49%	17%	0.26%	75	AUD	22,998	0.30%	19%	0.06%
16	MO	112,389	1.46%	19%	0.28%	76	SLE	22,722	0.30%	12%	0.04%
17	SBC	111,860	1.45%	8%	0.12%	77	CL	22,656	0.29%	14%	0.04%
18	JNJ	107,595	1.40%	19%	0.27%	78	ALD	22,262	0.29%	13%	0.04%
19	DELL	107,002	1.39%	212%	2.94%	79	EK	21,141	0.27%	11%	0.03%
20	RD	96,493	1.25%	8%	0.10%	80	AMAT	20,330	0.26%	28%	0.07%
21	BEL	91,904	1.19%	8%	0.10%	81	CPB	19,608	0.25%	17%	0.04%
22	BLS	90,925	1.18%	12%	0.14%	82	CVS	19,509	0.25%	10%	0.03%
23	LLY	85,706	1.11%	18%	0.20%	83	ARC	19,273	0.25%	9%	0.02%
24	HD	83,548	1.09%	15%	0.16%	84	DOW	19,201	0.25%	10%	0.02%
25	CPQ	81,069	1.05%	51%	0.54%	85	HNZ	18,995	0.25%	12%	0.03%
26	SGP	76,348	0.99%	32%	0.32%	86	LOW	18,207	0.24%	11%	0.03%
27	F	75,840	0.99%	14%	0.13%	87	BAX	18,077	0.23%	10%	0.02%
28	TWX	75,474	0.98%	4%	0.04%	88	RTN	18,070	0.23%	8%	0.02%
29	AIT	74,077	0.96%	16%	0.15%	89	GCI	17,899	0.23%	13%	0.03%
30	DIS	71,579	0.93%	9%	0.09%	90	AT	17,649	0.23%	10%	0.02%
31	HWP	71,269	0.93%	15%	0.13%	91	PBI	17,568	0.23%	12%	0.03%
32	AHP	69,937	0.91%	12%	0.11%	92	COMS	16,948	0.22%	27%	0.06%
33	ABT	68,340	0.89%	19%	0.17%	93	TLAB	16,366	0.21%	43%	0.09%
34	MOB	67,033	0.87%	10%	0.09%	94	GDT	16,363	0.21%	19%	0.04%
35	GTE	64,602	0.84%	12%	0.10%	95	CD	16,286	0.21%	6%	0.01%
36	DD	60,852	0.79%	9%	0.07%	96	CAT	16,096	0.21%	15%	0.03%
37	GM	58,912	0.77%	3%	0.02%	97	COST	15,739	0.20%	10%	0.02%
38	AN	57,160	0.74%	10%	0.08%	98	FDC	15,571	0.20%	6%	0.01%
39	G	56,505	0.73%	17%	0.13%	99	AA	15,420	0.20%	9%	0.02%
40	PEP	55,996	0.73%	13%	0.10%	100	CAG	15,384	0.20%	12%	0.02%
41	WLA	54,982	0.71%	16%	0.12%	101	VO	15,267	0.20%	4%	0.01%
42	ATI	53,943	0.70%	9%	0.06%	102	ITW	15,254	0.20%	14%	0.03%
43	MCD	51,879	0.67%	10%	0.07%	103	K	15,181	0.20%	20%	0.04%
44	CHV	51,540	0.67%	10%	0.07%	104	CCU	14,909	0.19%	8%	0.02%
45	UN	50,335	0.65%	10%	0.07%	105	MU	14,905	0.19%	9%	0.02%
46	EMC	48,428	0.63%	33%	0.21%	106	IMT	14,820	0.19%	10%	0.02%
47	ORCL	46,726	0.61%	44%	0.27%	107	ABS	14,687	0.19%	12%	0.02%
48	MOT	41,262	0.54%	9%	0.05%	108	KR	14,625	0.19%	13%	0.03%
49	TYC	40,918	0.53%	5%	0.03%	109	CAH	14,465	0.19%	11%	0.02%
50	TXN	37,554	0.49%	9%	0.04%	110	HAL	13,896	0.18%	13%	0.02%
51	XRX	36,726	0.48%	10%	0.05%	111	BFO	13,645	0.18%	12%	0.02%
52	NT	35,828	0.47%	13%	0.06%	112	HBOC	13,268	0.17%	14%	0.02%
53	FON	34,052	0.44%	13%	0.06%	113	MAY	13,207	0.17%	12%	0.02%
54	MDT	33,734	0.44%	22%	0.10%	114	IP	12,990	0.17%	2%	0.00%
55	GPS	33,277	0.43%	16%	0.07%	115	RAD	12,694	0.17%	7%	0.01%
56	UMG	32,388	0.42%	-1%	0.00%	116	GIS	12,336	0.16%	21%	0.03%
57	BUD	32,140	0.42%	14%	0.06%	117	CZT	12,252	0.16%	31%	0.05%
58	BAX	32,113	0.42%	4%	0.02%	118	COL	11,819	0.15%	3%	0.00%
59	USW	30,690	0.40%	10%	0.04%	119	CLX	11,569	0.15%	14%	0.02%
60	MMM	29,134	0.38%	17%	0.06%	120	WY	11,355	0.15%	5%	0.01%

Table 8
Market-Capitalization-Weighted Return on Capital for the S&P Industrials continued

Rank	Company	Market Value	% of S&P	ROIC 1998E	% of S&P (x) ROIC	Rank	Company	Market Value	% of S&P	ROIC 1998E	% of S&P (x) ROIC
121	GLW	11,295	0.15%	15%	0.02%	181	NWL	5,915	0.08%	14%	0.01%
122	NKE	11,141	0.14%	21%	0.03%	182	TEN	5,899	0.08%	11%	0.01%
123	AMP	11,131	0.14%	13%	0.02%	183	UST	5,835	0.08%	62%	0.05%
124	MHP	10,775	0.14%	9%	0.01%	184	HRC	5,813	0.08%	5%	0.00%
125	OMC	10,438	0.14%	29%	0.04%	185	MYG	5,755	0.07%	10%	0.01%
126	P	10,384	0.13%	9%	0.01%	186	UK	5,750	0.07%	15%	0.01%
127	IPG	10,283	0.13%	14%	0.02%	187	GPC	5,712	0.07%	16%	0.01%
128	WWY	10,214	0.13%	29%	0.04%	188	FO	5,579	0.07%	4%	0.00%
129	CSC	10,103	0.13%	11%	0.01%	189	GP	5,565	0.07%	4%	0.00%
130	AVP	10,081	0.13%	16%	0.02%	190	PX	5,561	0.07%	12%	0.01%
131	PPG	10,078	0.13%	13%	0.02%	191	JCI	5,537	0.07%	9%	0.01%
132	MAS	9,932	0.13%	11%	0.01%	192	EFX	5,535	0.07%	18%	0.01%
133	SEG	9,795	0.13%	22%	0.03%	193	ROH	5,451	0.07%	12%	0.01%
134	JCP	9,791	0.13%	6%	0.01%	194	CEN	5,279	0.07%	8%	0.01%
135	ASC	9,691	0.13%	6%	0.01%	195	VFC	5,264	0.07%	10%	0.01%
136	BSX	9,479	0.12%	7%	0.01%	196	DNB	5,264	0.07%	18%	0.01%
137	ADM	9,344	0.12%	3%	0.00%	197	CC	5,254	0.07%	6%	0.00%
138	GTW	9,206	0.12%	26%	0.03%	198	AAPL	5,253	0.07%	-19%	-0.01%
139	BDX	9,124	0.12%	11%	0.01%	199	DNY	5,167	0.07%	6%	0.00%
140	SRV	9,056	0.12%	7%	0.01%	200	ETN	5,092	0.07%	12%	0.01%
141	UIS	9,028	0.12%	1%	0.00%	201	BDK	5,030	0.07%	8%	0.01%
142	TJX	8,954	0.12%	14%	0.02%	202	AZO	5,025	0.07%	15%	0.01%
143	HON	8,690	0.11%	14%	0.02%	203	OI	4,884	0.06%	10%	0.01%
144	NXTL	8,576	0.11%	-12%	-0.01%	204	NOBE	4,854	0.06%	10%	0.01%
145	FJ	8,499	0.11%	9%	0.01%	205	BFB	4,823	0.06%	15%	0.01%
146	SYI	8,442	0.11%	14%	0.02%	206	KLAC	4,726	0.06%	13%	0.01%
147	FD	8,388	0.11%	8%	0.01%	207	PKN	4,691	0.06%	17%	0.01%
148	HSY	8,300	0.11%	16%	0.02%	208	TAN	4,668	0.06%	7%	0.00%
149	MRO	8,229	0.11%	7%	0.01%	209	AGN	4,649	0.06%	11%	0.01%
150	RAL	8,203	0.11%	12%	0.01%	210	IFF	4,647	0.06%	21%	0.01%
151	ROK	8,017	0.10%	10%	0.01%	211	ECL	4,604	0.06%	10%	0.01%
152	DE	7,930	0.10%	12%	0.01%	212	SHW	4,601	0.06%	15%	0.01%
153	UNH	7,814	0.10%	9%	0.01%	213	CBE	4,565	0.06%	8%	0.00%
154	IR	7,790	0.10%	9%	0.01%	214	HAS	4,541	0.06%	12%	0.01%
155	TRB	7,764	0.10%	10%	0.01%	215	TMC	4,541	0.06%	12%	0.01%
156	MAR	7,754	0.10%	14%	0.01%	216	AHC	4,530	0.06%	6%	0.00%
157	APD	7,745	0.10%	10%	0.01%	217	UCC	4,497	0.06%	4%	0.00%
158	OAT	7,571	0.10%	8%	0.01%	218	BFI	4,463	0.06%	8%	0.00%
159	KM	7,548	0.10%	5%	0.01%	219	SEE	4,363	0.06%	15%	0.01%
160	ABX	7,520	0.10%	5%	0.00%	220	IIN	4,354	0.06%	7%	0.00%
161	GT	7,503	0.10%	10%	0.01%	221	HRB	4,265	0.06%	39%	0.02%
162	LTD	7,369	0.10%	4%	0.00%	222	RBD	4,265	0.06%	11%	0.01%
163	UCL	7,347	0.10%	10%	0.01%	223	DJ	4,235	0.06%	6%	0.00%
164	DOV	7,342	0.10%	16%	0.02%	224	NOC	4,189	0.05%	11%	0.01%
165	YUM	7,134	0.09%	4%	0.00%	225	NUE	4,171	0.05%	14%	0.01%
166	PHB	7,049	0.09%	17%	0.02%	226	CCK	4,105	0.05%	7%	0.00%
167	NOVL	6,875	0.09%	-6%	-0.01%	227	AVY	4,079	0.05%	16%	0.01%
168	GD	6,813	0.09%	12%	0.01%	228	HLT	4,026	0.05%	5%	0.00%
169	DCN	6,601	0.09%	12%	0.01%	229	BMET	4,008	0.05%	20%	0.01%
170	THC	6,492	0.08%	6%	0.01%	230	ALT	3,980	0.05%	6%	0.00%
171	WIN	6,464	0.08%	6%	0.00%	231	TOY	3,969	0.05%	8%	0.00%
172	MAT	6,379	0.08%	18%	0.01%	232	WHR	3,954	0.05%	6%	0.00%
173	GIC	6,266	0.08%	1%	0.00%	233	AZA	3,920	0.05%	5%	0.00%
174	FRO	6,221	0.08%	7%	0.01%	234	KRI	3,705	0.05%	12%	0.01%
175	BR	6,081	0.08%	8%	0.01%	235	CHA	3,686	0.05%	1%	0.00%
176	TRW	6,062	0.08%	11%	0.01%	236	GWV	3,636	0.05%	14%	0.01%
177	AL	6,061	0.08%	7%	0.01%	237	WLL	3,627	0.05%	4%	0.00%
178	BHI	6,025	0.08%	6%	0.00%	238	H	3,626	0.05%	2%	0.00%
179	NYT	5,972	0.08%	9%	0.01%	239	PMTG	3,620	0.05%	75%	0.04%
180	OXY	5,924	0.08%	6%	0.00%	240	ASH	3,605	0.05%	10%	0.00%

Table 8
Market-Capitalization-Weighted Return on Capital for the S&P Industrials continued

Rank	Company	Market Value	% of S&P	ROIC 1998E	% of S&P (x) ROIC	Rank	Company	Market Value	% of S&P	ROIC 1998E	% of S&P (x) ROIC
241	APC	3,545	0.05%	6%	0.00%	301	LPX	1,970	0.03%	-1%	0.00%
242	EMN	3,488	0.05%	7%	0.00%	302	BMS	1,956	0.03%	11%	0.00%
243	BOL	3,393	0.04%	8%	0.00%	303	N	1,951	0.03%	1%	0.00%
244	TIN	3,392	0.04%	3%	0.00%	304	RYC	1,914	0.02%	24%	0.01%
245	RLM	3,344	0.04%	4%	0.00%	305	NLC	1,879	0.02%	14%	0.00%
246	PH	3,322	0.04%	13%	0.01%	306	CS	1,867	0.02%	8%	0.00%
247	SGI	3,315	0.04%	4%	0.00%	307	FCX	1,862	0.02%	11%	0.00%
248	SUN	3,239	0.04%	25%	0.01%	308	FMC	1,855	0.02%	6%	0.00%
249	PCAR	3,183	0.04%	8%	0.00%	309	BCC	1,778	0.02%	0%	0.00%
250	SVU	3,182	0.04%	10%	0.00%	310	MDP	1,765	0.02%	14%	0.00%
251	ADBE	3,179	0.04%	15%	0.01%	311	KMG	1,701	0.02%	9%	0.00%
252	NEM	3,146	0.04%	6%	0.00%	312	HET	1,636	0.02%	8%	0.00%
253	FLR	3,134	0.04%	7%	0.00%	313	ANDW	1,632	0.02%	21%	0.00%
254	MEA	3,095	0.04%	5%	0.00%	314	CSE	1,625	0.02%	13%	0.00%
255	MII	3,093	0.04%	10%	0.00%	315	CTB	1,582	0.02%	10%	0.00%
256	HUM	3,079	0.04%	11%	0.00%	316	ACV	1,527	0.02%	14%	0.00%
257	AMD	3,051	0.04%	2%	0.00%	317	CUM	1,458	0.02%	8%	0.00%
258	LDW	3,013	0.04%	9%	0.00%	318	NSI	1,455	0.02%	9%	0.00%
259	HRS	2,990	0.04%	9%	0.00%	319	LDG	1,446	0.02%	6%	0.00%
260	LSI	2,978	0.04%	11%	0.00%	320	MIL	1,431	0.02%	10%	0.00%
261	PLL	2,947	0.04%	10%	0.00%	321	ORX	1,388	0.02%	18%	0.00%
262	PDG	2,938	0.04%	0%	0.00%	322	MDR	1,373	0.02%	-2%	0.00%
263	DLX	2,849	0.04%	13%	0.00%	323	BLL	1,346	0.02%	6%	0.00%
264	EC	2,847	0.04%	9%	0.00%	324	SMS	1,343	0.02%	13%	0.00%
265	SIAL	2,836	0.04%	16%	0.01%	325	FLE	1,310	0.02%	14%	0.00%
266	AM	2,814	0.04%	8%	0.00%	326	FTL	1,284	0.02%	4%	0.00%
267	WEN	2,808	0.04%	8%	0.00%	327	WTHG	1,272	0.02%	9%	0.00%
268	PD	2,779	0.04%	13%	0.00%	328	TKR	1,269	0.02%	9%	0.00%
269	DDS	2,777	0.04%	6%	0.00%	329	TEK	1,224	0.02%	9%	0.00%
270	TNB	2,670	0.03%	9%	0.00%	330	EGG	1,214	0.02%	8%	0.00%
271	MIR	2,652	0.03%	9%	0.00%	331	BGG	1,197	0.02%	10%	0.00%
272	TMO	2,650	0.03%	9%	0.00%	332	BS	1,194	0.02%	5%	0.00%
273	GR	2,606	0.03%	9%	0.00%	333	PHM	1,174	0.02%	7%	0.00%
274	DRI	2,566	0.03%	1%	0.00%	334	GAP	1,144	0.01%	6%	0.00%
275	HPC	2,560	0.03%	16%	0.01%	335	GRA	1,135	0.01%	3%	0.00%
276	BC	2,539	0.03%	9%	0.00%	336	KBH	1,070	0.01%	9%	0.00%
277	BCR	2,537	0.03%	8%	0.00%	337	DGN	1,062	0.01%	11%	0.00%
278	W	2,508	0.03%	6%	0.00%	338	MCL	1,050	0.01%	-3%	0.00%
279	ACK	2,474	0.03%	11%	0.00%	339	PCH	1,050	0.01%	4%	0.00%
280	NAV	2,452	0.03%	8%	0.00%	340	BMG	1,020	0.01%	0%	0.00%
281	SWK	2,409	0.03%	8%	0.00%	341	HP	954	0.01%	11%	0.00%
282	X	2,385	0.03%	11%	0.00%	342	TNV	946	0.01%	12%	0.00%
283	CTX	2,384	0.03%	11%	0.00%	343	PBY	943	0.01%	9%	0.00%
284	UPR	2,370	0.03%	12%	0.00%	344	CYM	934	0.01%	7%	0.00%
285	NSM	2,368	0.03%	8%	0.00%	345	TUP	902	0.01%	10%	0.00%
286	GLK	2,357	0.03%	7%	0.00%	346	RBK	900	0.01%	15%	0.00%
287	SNA	2,313	0.03%	10%	0.00%	347	JOS	881	0.01%	13%	0.00%
288	LIZ	2,282	0.03%	22%	0.01%	348	RDC	816	0.01%	19%	0.00%
289	HM	2,270	0.03%	-2%	0.00%	349	Z	805	0.01%	5%	0.00%
290	STJ	2,262	0.03%	12%	0.00%	350	PRD	795	0.01%	8%	0.00%
291	SFA	2,243	0.03%	11%	0.00%	351	CMZ	748	0.01%	9%	0.00%
292	MKG	2,230	0.03%	12%	0.00%	352	RML	732	0.01%	7%	0.00%
293	ACCOB	2,184	0.03%	6%	0.00%	353	NC	726	0.01%	8%	0.00%
294	CNS	2,176	0.03%	10%	0.00%	354	SMI	725	0.01%	7%	0.00%
295	APA	2,145	0.03%	7%	0.00%	355	PZL	671	0.01%	9%	0.00%
296	ADSK	2,125	0.03%	16%	0.00%	356	AR	627	0.01%	5%	0.00%
297	IKN	2,124	0.03%	5%	0.00%	357	FWC	552	0.01%	0%	0.00%
298	KWP	2,022	0.03%	45%	0.01%	358	AS	540	0.01%	6%	0.00%
299	OWC	1,994	0.03%	11%	0.00%	359	HPH	438	0.01%	8%	0.00%
300	CR	1,973	0.03%	14%	0.00%	360	IAD	336	0.00%	6%	0.00%
Total						7,693,132 (a)					
						12.5% (b)					
						26.8% (c)					

(a) Sum of the market capitalization of the 360 still extant companies that used to comprise the year end 1997 S&P Industrials Index

(b) Arithmetic mean of the 1998E ROIC of these companies.

(c) Market weighted 1998E ROIC of these companies.

Source: FactSet, S&P Corporation, CSFB estimates.

Americas

Eleven Madison Avenue
New York, NY 10010, U.S.A.
1 212 325 2000

Atlanta	1 404 656 9500	Pasadena	1 626 395 5100
Boston	1 617 556 5500	Philadelphia	1 215 851 1000
Buenos Aires	1 541 394 3100	Portland, ME	1 207 780 6210
Chicago	1 312 750 3000	San Francisco	1 415 836 7600
Houston	1 713 220 6700	São Paulo	55 11 822 4862
Mexico City	1 525 202 6000	Toronto	1 416 352 4500

Europe

One Cabot Square
London E14 4QJ, England
44 171 888 8888

Amsterdam	31 20 575 4444	Paris	33 1 40 76 8888
Budapest	36 1 202 2188	Prague	42 2 248 10937
Frankfurt	49 69 75380	Vienna	43 1 512 3023
Geneva	41 22 707 0130	Warsaw	48 22 695 0050
Madrid	34 1 532 0303	Zug	41 41 726 1020
Milan	39 2 7702 1	Zurich	41 1 335 7711
Moscow	7 501 967 8200		

Asia Pacific

Three Exchange Square
8 Connaught Place
Central, Hong Kong
852 2101 6000

Auckland	64 9 302 5500	Shanghai	86 21 6219 0808
Beijing	86 10 6410 6611	Singapore	65 538 6322
Melbourne	61 3 9 280 1666	Sydney	61 2 9394 4400
Mumbai	91 22 284 6888	Taipei	8862 2718 5919
Osaka	81 6 243 0789	Tokyo	81 3 5404 9000
Seoul	82 2 3707 3700	Wellington	64 4 474 4400

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