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CAMBRIDGE ASSOCIATES LLC

U.S. MARKET COMMENT: OF BUBBLES AND BEARS HISTORY'S MESSAGE

July 2002

Robert Lang
Marcelo Morales

Of Bubbles and Bears
History's Message

Despite its apparent ferocity, the current bear market has in fact been relatively lenient to equity investors compared to the bruising they suffered in the aftermath of past bubbles. If equity prices unwind in a pattern similar to prior post-mania phases, the damage may be far from over.

What Typically Happens After a Bubble

Whether in capital markets, currencies, or commodities, bubbles tend to give back all, and usually more, of their prior gains (see Table A). After such manias, it usually takes years, sometimes decades, for prices to return to their prior peaks, in the process typically grinding out below-average returns. For example:

- The Dow Jones Industrial Average (DJIA) peaked in 1929, after which it took 25 years (1954) until the composite returned to its pre-crash level.
- The DJIA reached a secular top in 1966, and it was not until 17 years later that it broke through that peak, marking the commencement of the next secular bull market.
- Ten-year U.S. Treasury bond yields peaked in 1981, and, 21 years later, the rally in Treasuries continues.
- Japan's Nikkei 225 peaked in 1989, and, 13 years later, shows no signs of reflating. It currently trades at the point where it was in 1983.
- The real trade-weighted US$ peaked in 1985, and by 2002, 17 years later, remains about 12% below that peak.
- The Commodities Research Bureau's Index peaked in 1980. Twenty-two years later, that height is only a distant memory. Oil, cocoa, gold, and nickel remain far short of the prices at which they sold 15 to 20 years ago.

After Secular Equity Bull Markets

Typically, the equity market retraces a substantial portion of its gains earned during the prior bull market before advancing to the subsequent rise (see Table B). Since 1896, cyclical and secular bear markets have, on average, given back 89% of these gains.

The largest cumulative appreciation in the DJIA, 344.5%, occurred between October 27, 1923 and September 3, 1929. One hundred dollars invested at the top in 1929 would have been reduced to $42.40 by 1949 (see Table C). Despite significant bull markets (93.9%, 120.8%, 127.3%, and 128.7%), it took 25 years for investors to dig themselves out of the hole created from the 1929 and 1932 crashes. By 1954, when the DJIA finally broke through the level last reached in 1929, it had returned average annual compound returns of 0.1% and -1.7% in nominal and real terms, respectively, over the intervening 25 years (see Table D).

The DJIA next peaked again in 1966, and it was not until 1982 that the composite broke through that level to begin the next secular bull market. One hundred dollars invested at the peak in February 1966 would have been reduced to $78.04 in 1982, despite several sharp rallies (50.6% and 75.7%). From 1966 to 1982, the composite posted annual nominal and real returns of 0.0% and -6.5%.

In the current bear market, major equity indexes have surrendered all the gains they made over the last four years. Since their peaks in 2000 through June 30, 2002, the S&P 500 has returned -35.2%, returning to levels last visited in November 1997; the DJIA, -21.2%, falling to its December 1998 level; and the Nasdaq, -71.0%, revisiting its level of June 1997. One hundred dollars invested at the DJIA's September 6, 2000 peak would have been reduced to $77.82 by mid-July 2002.

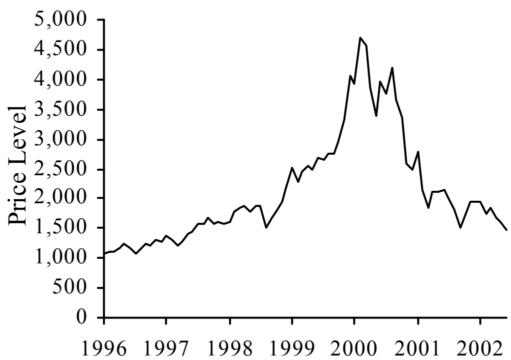
Table G shows the average annual return over a certain number of years required for stocks to return to their peaks of 2000—and these returns may be far different than what investors are assuming. For the DJIA to recapture its January 2000 peak by July 2003, it would have to rise 34.2% over the next 12 months; by July 2004, 15.8% each year; by July 2012, 3.0% per year; and by 2027, 1.2% each year. For the S&P 500 to return to its March 2000 peak over the next 12 months, it would have to rise 67.5%; in two years, 29.4% each year; ten years, 5.3%; and 25 years, 2.1%.

If the past indicates anything about the future, there may be more downside risks in the current market. Prior post-mania periods provide ugly precedents: the 25 years from 1929 to 1954 when the DJIA posted an average annual real return of -1.7%, and the 17 years from 1966 to 1982, with an average annual real return of -6.5%. These precedents, however, may be preferable to the post-bubble periods for Japan's equity market, the US$, and commodities: after 13 to 25 years, they still have not recaptured their prior peaks. Rather than playing the "is this the bottom?" game, investors should perhaps be prepared for a long, hard slog in case the unwinding of the recent bubble conforms to the pattern typical of post-speculative busts.

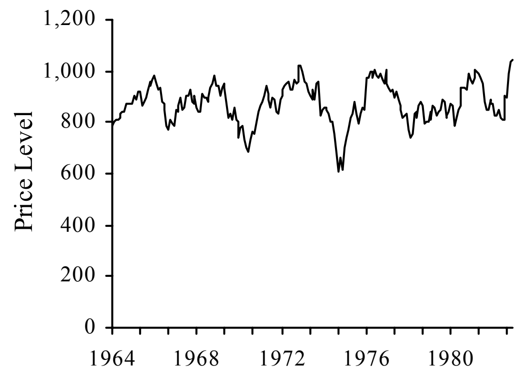
Table A

BUBBLES OF MAJOR INDEXES, THE U.S. DOLLAR AND COMMODITIES

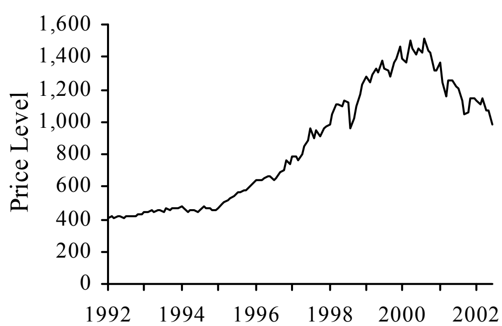
Nasdaq Composite (1996-2002)



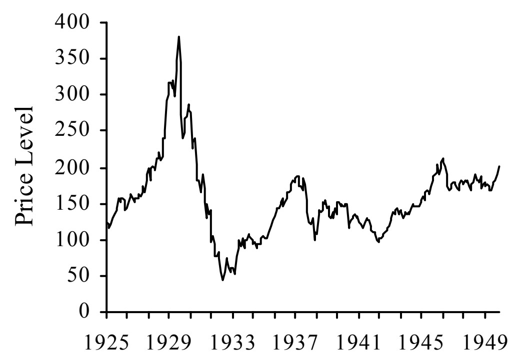
DJIA (1964-82)



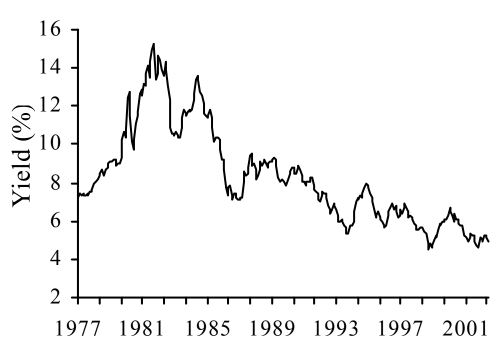
S&P 500 (1992-2002)



DJIA (1925-49)



10 Year U.S. Treasury (1977-2002)



Nikkei 225 Index (¥) (1986-2002)

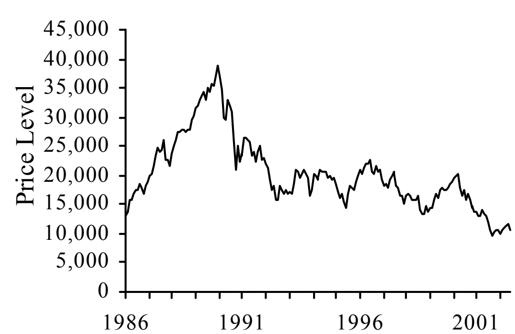
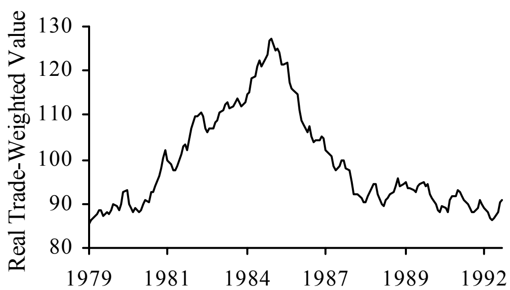


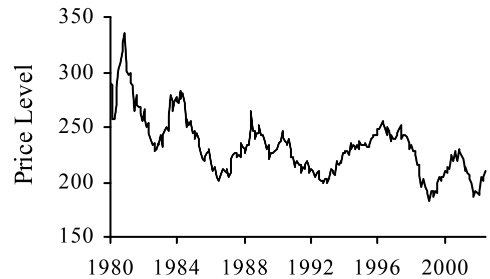
Table A (continued)

BUBBLES OF MAJOR INDEXES, THE U.S. DOLLAR AND COMMODITIES

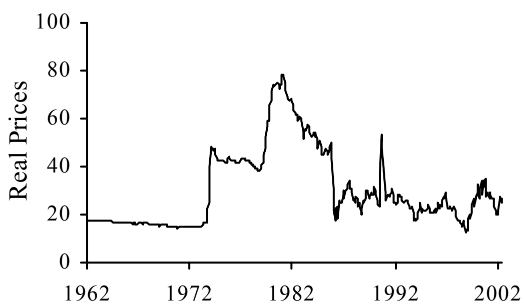
U.S. Dollar (1979-92)



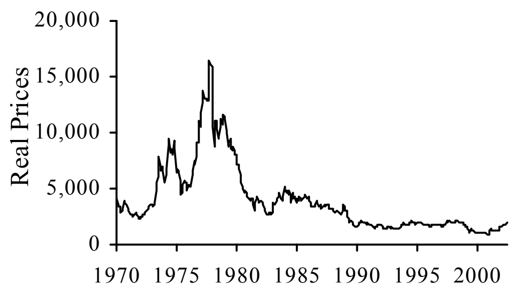
Bridge - CRB Commodity Index (1980-2002)



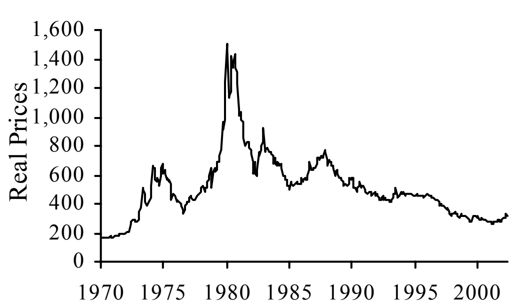
Crude Oil (1962-2002)



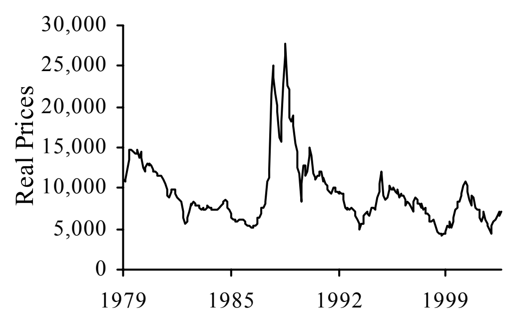
Cocoa (1970-2002)



Gold (1970-2002)



Nickel (1979-2002)



Sources: Global Financial Data, Grantham, Mayo, Van Otterloo & Company, Ned Davis Research, *The Wall Street Journal*, and Thomson Financial Datastream.

Notes: Data for 2002 are as of June 30. Data are denominated in U.S. dollars ($), unless otherwise noted.

Table B

RETRACEMENT RATIOS OF THE DOW JONES INDUSTRIAL AVERAGE FOLLOWING BULL MARKET PEAKS

Date of	Date of	Trough to Peak		Date of Subsequent	Peak to Subsequent Trough		Retracement
Trough	Peak	Percent rise	# of Months	Troughs	Percent Decline	# of Months	Ratio (%)
8/8/1896	9/10/1897	96.0	13.1	3/25/1898	-24.8	6.4	50.6
3/25/1898	4/25/1899	84.0	13.0	9/24/1900	-31.5	17.0	69.0
9/24/1900	6/17/1901	47.8	8.7	11/9/1903	-46.1	28.7	142.5
11/9/1903	1/19/1906	144.4	26.3	11/15/1907	-48.5	21.8	82.1
11/15/1907	11/19/1909	89.7	24.1	9/25/1911	-27.4	22.2	57.9
9/25/1911	9/30/1912	29.1	12.2	12/24/1914	-43.5	26.8	193.0
12/24/1914	11/21/1916	107.2	22.9	12/19/1917	-40.1	12.9	77.5
12/19/1917	11/3/1919	81.4	22.5	8/24/1921	-46.6	21.7	103.8
8/24/1921	3/20/1923	64.9	18.8	10/27/1923	-18.6	7.3	47.3
10/27/1923	9/3/1929	344.5	70.2	11/13/1929	-47.9	2.3	61.8
11/13/1929	4/17/1930	48.0	5.1	7/8/1932	-86.0	26.7	265.2
7/8/1932	9/7/1932	93.9	2.0	2/27/1933	-37.2	5.7	76.8
2/27/1933	2/5/1934	120.8	11.3	7/26/1934	-22.8	5.6	41.7
7/26/1934	3/10/1937	127.3	31.5	3/31/1938	-49.1	12.7	87.7
3/31/1938	11/12/1938	60.1	7.4	4/8/1939	-23.3	4.8	62.1
4/8/1939	9/12/1939	28.4	5.2	4/28/1942	-40.4	31.5	182.7
4/28/1942	5/29/1946	128.7	49.0	5/17/1947	-23.2	11.6	41.2
5/17/1947	6/15/1948	18.4	13.0	6/13/1949	-16.3	11.9	104.9
6/13/1949	4/6/1956	222.4	81.8	10/22/1957	-19.4	18.5	28.1
10/22/1957	1/5/1960	63.3	26.4	10/25/1960	-17.4	9.7	44.9
10/25/1960	12/13/1961	29.8	13.6	6/26/1962	-27.1	6.4	118.0
6/26/1962	2/9/1966	85.7	43.5	10/7/1966	-25.2	7.9	54.6
10/7/1966	12/3/1968	32.4	25.9	5/26/1970	-35.9	17.7	146.7
5/26/1970	4/28/1971	50.6	11.1	11/23/1971	-16.1	6.9	47.9
11/23/1971	1/11/1973	31.8	13.6	12/6/1974	-45.1	22.8	186.9
12/6/1974	9/21/1976	75.7	21.5	2/28/1978	-26.9	17.2	62.4
2/28/1978	9/8/1978	22.3	6.3	4/21/1980	-16.4	19.4	89.9
4/21/1980	4/27/1981	34.9	12.2	8/12/1982	-24.1	15.5	93.2
8/12/1982	11/29/1983	65.7	15.6	7/24/1984	-15.6	7.8	39.3
7/24/1984	8/25/1987	150.6	37.0	10/19/1987	-36.1	1.8	60.1
10/19/1987	7/17/1990	72.5	32.9	10/11/1990	-21.2	2.8	50.4
10/11/1990	7/17/1998	294.8	93.1	8/31/1998	-19.3	1.5	25.8
8/31/1998	1/14/2000	55.5	16.6	3/7/2000	-16.4	1.7	46.1
3/7/2000	9/6/2000	15.5	6.0	3/22/2001	-17.0	6.5	126.8
3/22/2001	5/21/2001	20.8	1.9	9/21/2001	-27.4	4.1	159.2
9/21/2001	3/19/2002	29.1	5.9	7/11/2002	-17.2	3.8	76.4

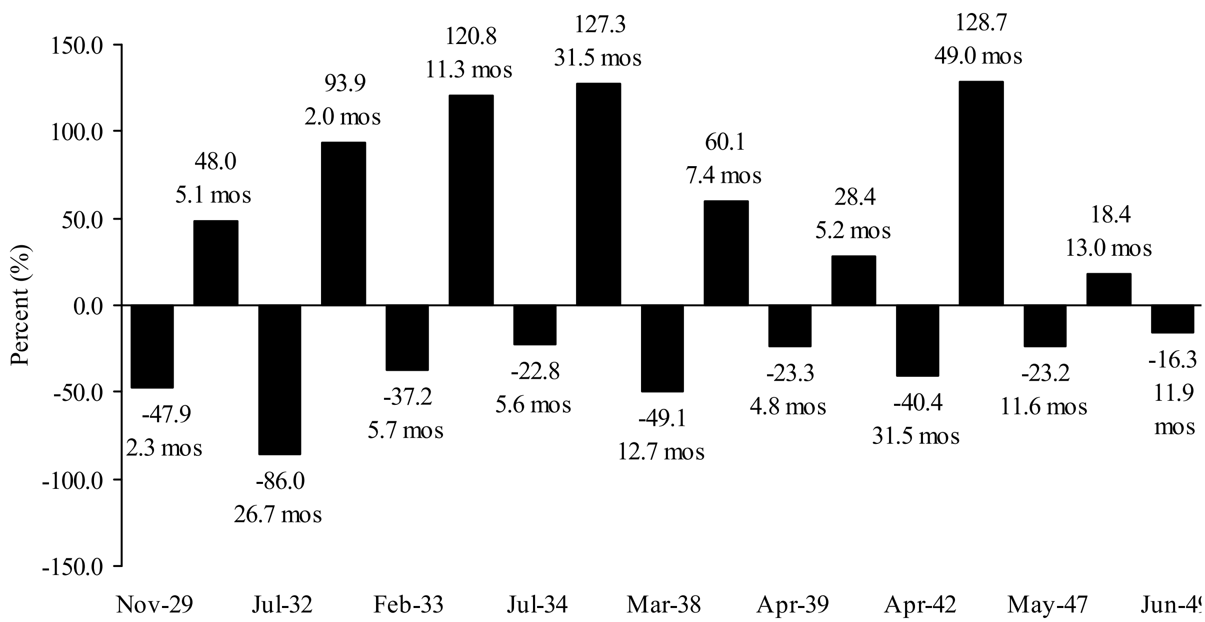
Sources: Crandall, Pierce & Company and Thomson Financial Datastream.

Notes: Data represent price returns. Bull market is defined as a continuous period without a price decline of 15% or more. Retracement ratio is the amount lost, peak to trough, divided by the amount previously gained, trough to peak. It represents the percentage of the prior market rise eliminated by the subsequent period decline.

Table C

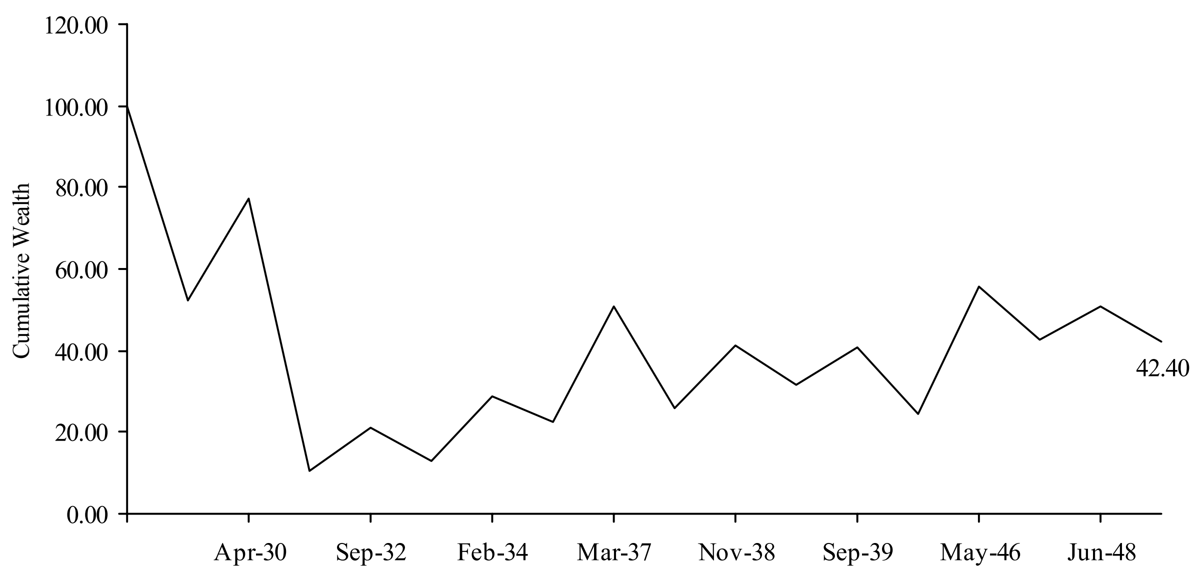
DOW JONES INDUSTRIAL AVERAGE PEAKS AND TROUGHS

November 13, 1929 - June 13, 1949



Cumulative Wealth of the Dow Jones Industrial Average Peaks and Troughs

November 13, 1929 - June 13, 1949



Sources: Crandall, Pierce & Company and Thomson Financial Datastream.

Note: Data represent price returns.

Table D

POST-BUBBLE RETURNS FOR VARIOUS INDEXES AND ASSET CLASSES

	Date of Peak	Years to Return to Prior Peak	Average Annual Compound Return (%) During Recovery Years: Nominal	Average Annual Compound Return (%) During Recovery Years: Real
Dow Jones Industrial Average	1929	25 years	0.1	-1.7
Dow Jones Industrial Average	1966	17 years	0.0	-6.5
Nikkei 225 Index	1989	Yet to recover in 13 years	-9.9	-10.4
U.S. Dollar	1985	Yet to recover in 17 years	3.8	-0.8
Bridge - CRB Commodity Index	1980	Yet to recover in 22 years	-2.2	-5.5
Crude Oil	1981	Yet to recover in 21 years	-1.6	-4.9
Cocoa	1977	Yet to recover in 25 years	-4.2	-8.3
Gold	1980	Yet to recover in 22 years	-3.4	-6.7
Nickel	1989	Yet to recover in 13 years	-7.0	-9.7
		Mean	**-2.7**	**-6.0**

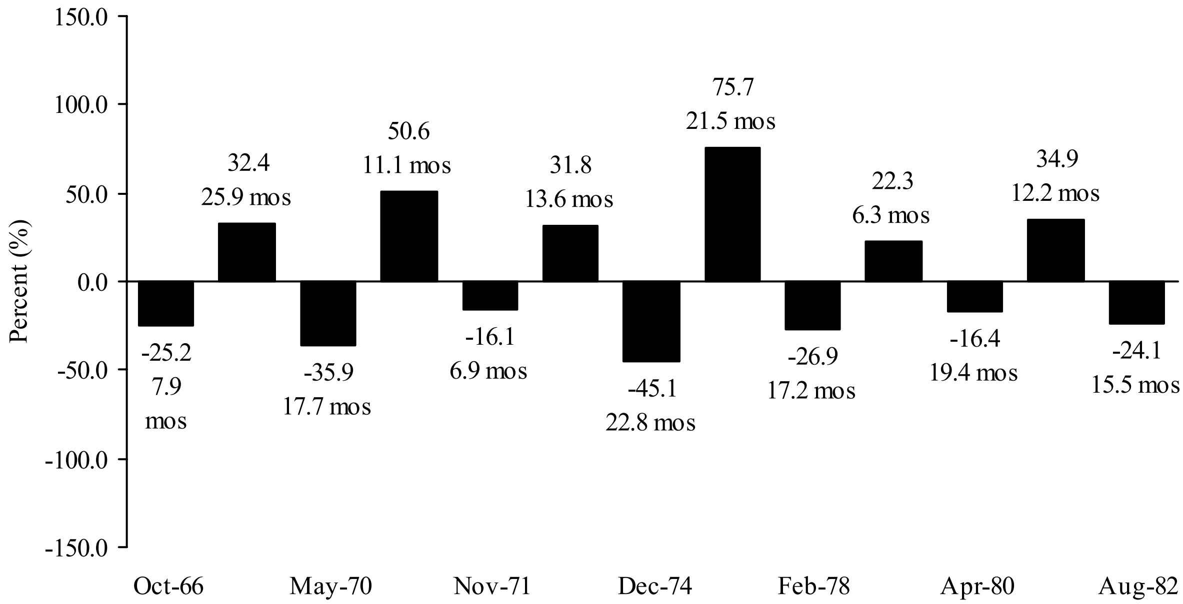
Sources: Bureau of Labor Statistics, Global Financial Data, Thomson Financial Datastream, and *The Wall Street Journal.*

Notes: Data represent price returns. All returns are in U.S. dollars except the Nikkei 225 Index, which is in yen.

Table E

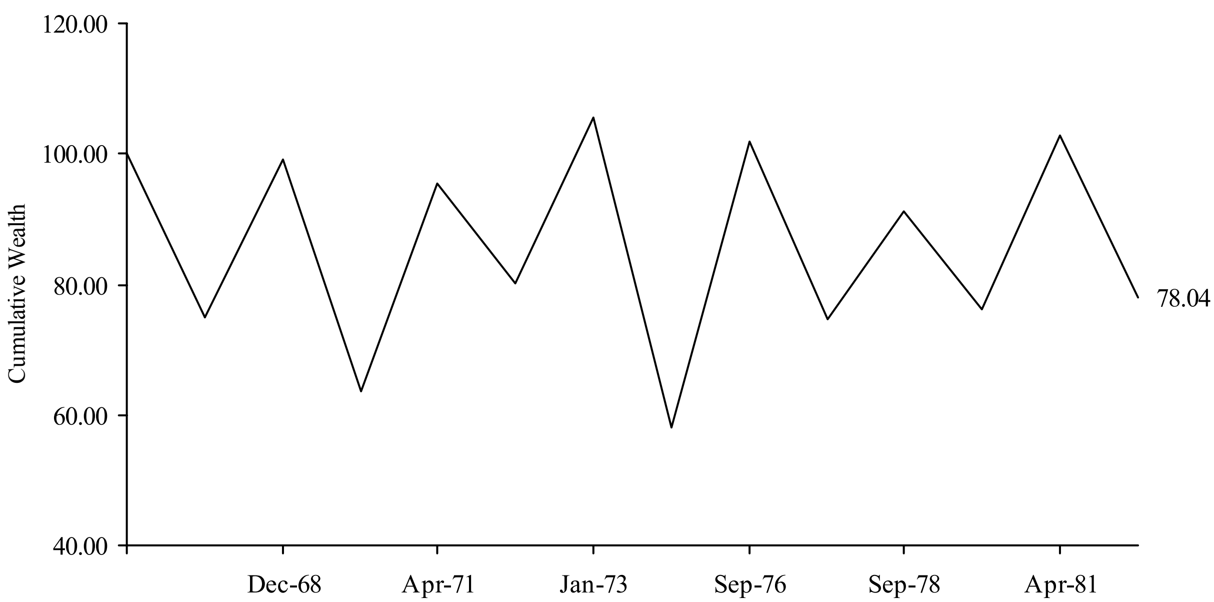
DOW JONES INDUSTRIAL AVERAGE PEAKS AND TROUGHS

October 7, 1966 - August 12, 1982



Cumulative Wealth of the Dow Jones Industrial Average Peaks and Troughs

October 7, 1966 - August 12, 1982



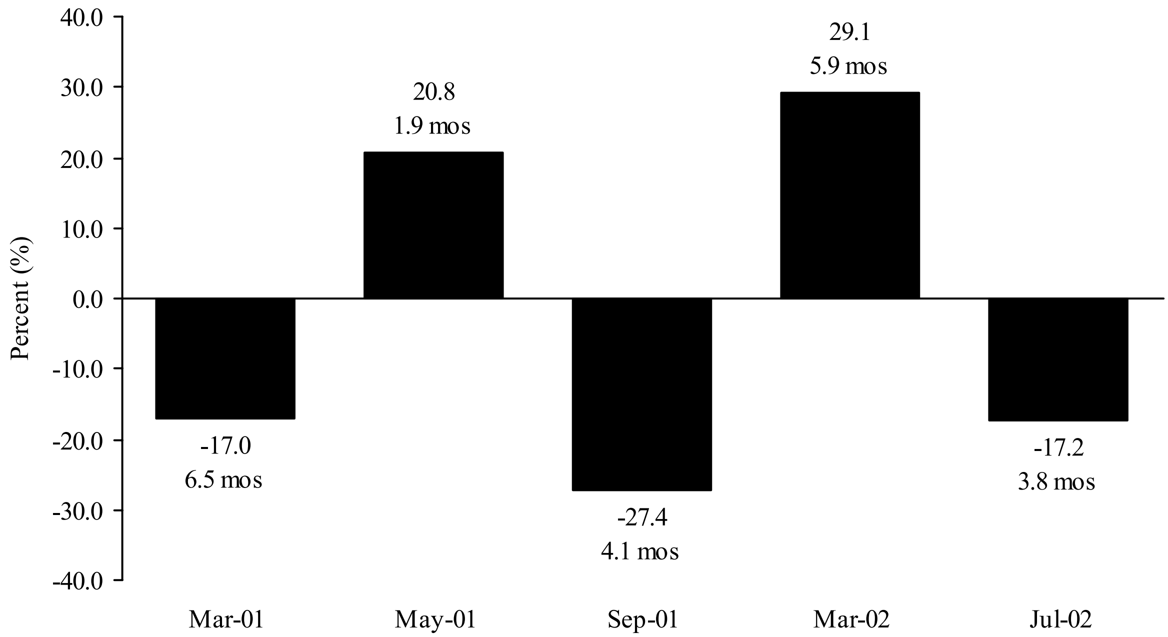
Sources: Crandall, Pierce & Company and Thomson Financial Datastream.

Note: Data represent price returns.

Table F

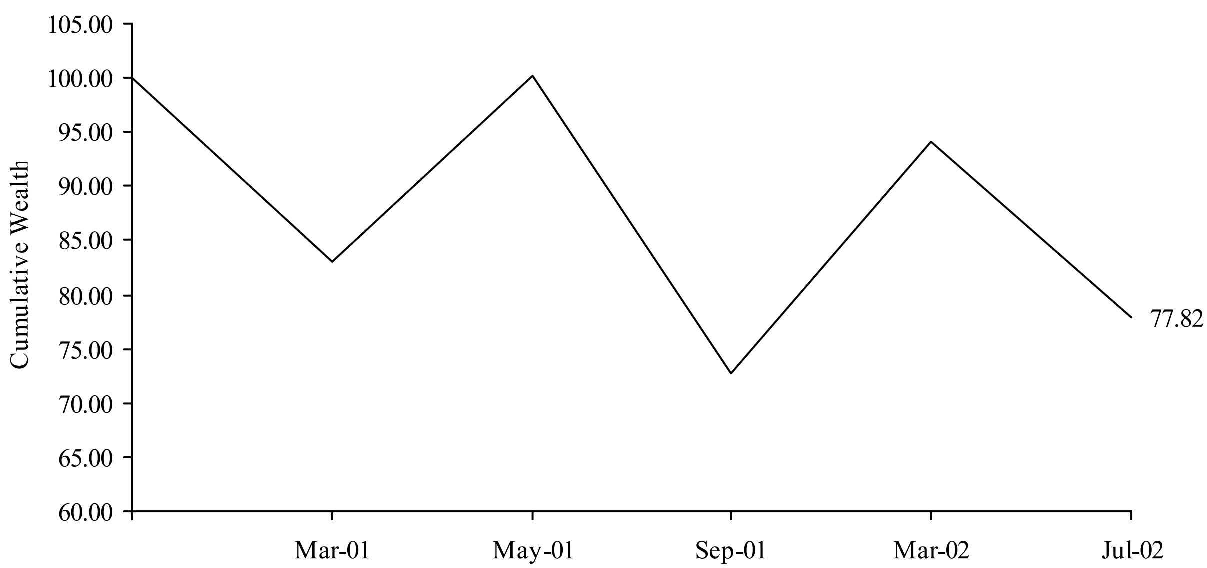
DOW JONES INDUSTRIAL AVERAGE PEAKS AND TROUGHS

March 22, 2001 - July 11, 2002



Cumulative Wealth of the Dow Jones Industrial Average Peaks and Troughs

March 22, 2001 - July 11, 2002



Sources: Crandall, Pierce & Company and Thomson Financial Datastream.

Note: Data represents price returns.

Table G

PROSPECTIVE ANNUAL RETURNS NEEDED TO RETURN TO PRIOR PEAK

	Dow Jones Industrial Average	S&P 500 Index	Nasdaq Composite
July 31, 2002 Price Level	8,736.6	911.6	1,328.3
Peak Price Level	11,723	1,527	5,048
Date of Peak	January 14, 2000	March 24, 2000	March 10, 2000
Years to Peak		**Prospective Returns (%)**	
1 Year	34.2	67.5	280.0
2 Years	15.8	29.4	94.9
5 Years	6.1	10.9	30.6
10 Years	3.0	5.3	14.3
15 Years	2.0	3.5	9.3
20 Years	1.5	2.6	6.9
25 Years	1.2	2.1	5.5

Sources: Thomson Financial Datastream and *The Wall Street Journal.*

Notes: Data for 2002 are as of July 31. Returns are based on price levels.