

From the Board

The Perplexing Issue of Valuation: Will the Real Value Please Stand Up?

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The relation between interest rates and share prices is changing. Specifically, the historical relation has not been binding on the market. Stocks have for some time traded "rich" relative to interest rates (see Tables I and II). There are several reasons one could offer for this—(1) significant corporate demand for shares over the last several years; (2) heightened participation by the Japanese in the U.S. stock market (see Table III); and (3) an unusually long business expansion.

These reasons are partially responsible for shares achieving higher levels than would be suggested by the historical relation between stocks and interest rates. To us, however, the two most important reasons for the unusual level of shares relative to interest rates are financial market deregulation (which has increased the volatility of debt instruments and reduced the sensitivity of the economy/earnings to interest rates) and contained and moderate inflation.

We believe that, when inflation is contained and moderate, a nominal-interest-rate approach to market valuation is less binding and will understate the true value of shares. Why? First, when inflation is contained, the corporate sector is better able to index profits to inflation. Second, contained inflation is associated with less economic/earnings volatility.

Third, the quality of corporate profits is higher when inflation is moderate. Fourth, contained inflation is associated with a higher real return on assets and longer business expansions (see Figure A). Fifth, contained inflation may foreshadow lower bond yields, and share prices may reflect this long before yields actually decline.

Is there empirical support for our argument that nominal bond yields are less binding on the market when inflation is contained? Yes. First, as indicated in Table IV, the sensitivity of the market's P/E to interest rates in the low-inflation decade of the 1960s was much less than in the high-inflation decade of the 1970s. Also, the amount of P/E variability explained by interest rates in the 1960s was less than in the 1970s. And since 1986, a period of stable/low inflation, the importance of interest rates to P/Es has declined relative to the 1970s and early 1980s.

Second, real interest rates are usually above average when inflation is contained and usually below average when inflation is troublesome. So, if our contention is correct that nominal bond yields are less binding on shares when inflation is contained, there should be an inverse relation between the equity risk premium and real interest rates. The premium should be below its long-term average (i.e., shares should look expensive compared with nominal interest rates) when real interest rates are high and inflation is contained, and the premium should be above its long-term average (i.e., shares should look inexpensive compared with nominal interest rates) when real

Table I Interest Rates and Dividend Yield

Peak of S&P 500		Ratio			Trough of S&P 500		Ratio		
Date	Level	T-Bill ^a	5-Yr. Bond ^b	30-Yr. Bond ^c	Date	Level	T-Bill ^a	5-Yr. Bond ^b	30-Yr. Bond ^c
Dec. 1961	72.64	0.9	1.4	1.4	June 1962	52.32	0.7	1.0	1.1
Jan. 1966	94.06	1.6	1.7	1.5	Sept. 1966	73.20	1.4	1.5	1.3
Nov. 1968	108.37	2.0	2.1	2.0	June 1970	72.72	1.5	1.8	1.7
Dec. 1972	118.05	1.9	2.3	2.3	Sept. 1974	63.54	1.7	1.7	1.6
Dec. 1976	107.46	1.2	1.7	1.9	Mar. 1978	86.90	1.2	1.5	1.6
Nov. 1980	140.52	3.2	2.9	2.7	Aug. 1982	102.42	1.5	2.1	2.0
Oct. 1983	172.65	2.2	2.8	2.8	July 1984	147.82	2.1	2.7	2.7
Aug. 1987	336.77	2.4	3.2	3.5	Dec. 1987	223.92	1.6	2.1	2.3
Average					Average				
1961-1980		1.8	2.0	2.0	1962-1982		1.3	1.6	1.6
1983 and 1987		2.3	3.0	3.2	1984 and 1987		1.9	2.4	2.5
Current ^d		2.6	2.4	2.4					

a. Ratio is the T-bill rate divided by the S&P 500 dividend yield.

b. Ratio is the five-year government bond yield divided by the S&P 500 dividend yield.

c. Ratio is the 30-year government bond yield divided by the S&P 500 dividend yield.

d. As of March 15, 1990.

Table II Adjusted Cash Flow Yield and Interest Rates

Peak of S&P 400		Ratio ^a			Trough of S&P 400		Ratio ^a		
Date	Level	T-Bill ^b	5-Yr. Bond ^c	30-Yr. Bond ^d	Date	Level	T-Bill ^b	5-Yr. Bond ^c	30-Yr. Bond ^d
Dec. 1961	76.69	3.3	2.2	2.1	June 1962	54.80	4.5	3.4	3.1
Jan. 1966	99.19	2.2	2.1	2.3	Sept. 1966	81.65	2.4	2.4	2.6
Nov. 1968	118.03	1.8	1.7	1.7	June 1970	79.89	2.1	1.8	1.9
Dec. 1972	131.87	2.0	1.6	1.7	Sept. 1974	71.01	2.2	2.1	2.1
Dec. 1976	119.46	3.1	2.2	1.9	Feb. 1978	95.52	3.0	2.5	2.3
Nov. 1980	160.96	1.0	1.1	1.1	Aug. 1982	114.08	2.5	1.8	1.9
Oct. 1983	194.84	1.8	1.4	1.4	July 1984	167.75	2.2	1.7	1.7
Aug. 1987	393.17	1.9	1.4	1.3	Dec. 1987	255.43	3.1	2.1	2.0
Average					Average				
1961-1980		2.2	1.8	1.8	1962-1982		2.8	2.3	2.3
1983 and 1987		1.9	1.4	1.4	1984 and 1987		2.7	1.9	1.9
Current ^e		1.8	1.6	1.6					

- a. Details about the calculation of adjusted cash flow are available on request.
 b. Ratio is the adjusted cash flow yield of S&P 400 divided by three-month T-bill rate.
 c. Ratio is the adjusted cash flow yield of S&P 400 divided by five-year government bond yield.
 d. Ratio is the adjusted cash flow yield of S&P 400 divided by 30-year government bond yield.
 e. As of March 15, 1990; 1989 adjusted cash flow of S&P 400 is \$54.80.

interest rates are low and inflation is troublesome. This, in fact, has been the case (see Figure B).

Empirical analysis is consistent with our position. When inflation is contained and real interest rates are high, a nominal-interest-rate-based approach to market valuation will understate the true value of the market. These two circumstances are present today. This suggests to us that the value imbalance between shares and nominal interest rates of 20 per cent, portrayed in Table V, overstates stock market vulnerability. The value imbalance of 5 to 7 per cent between shares and inflation is closer, we think, to the value imbalance of shares.

We do not believe that shares in 1990 will have to experience anything near the full decline implied by interest-rate valuation approaches. Such a decline would require a sustained troublesome acceleration in inflation and a narrowing in real interest rates. We do not expect such a landscape in 1990. This is one reason why we believe downside risk in the market is contained over the coming months.

The combination of monetary gradualism, demographics and a reversal in the consumer/business debt build-up could encourage sustained low infla-

tion in the United States. This would suggest that historically established relations between shares and nominal interest rates will continue to overstate the value imbalance of shares.

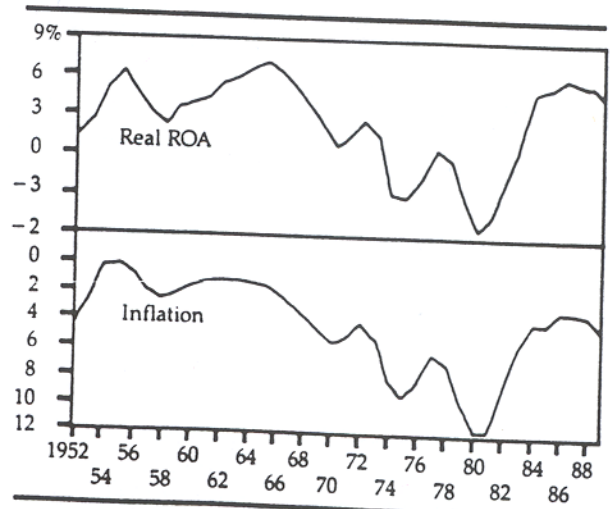
We are aware that much of the above smacks of the always dangerous phrase, "This time things are different." Nonetheless, we believe that things *are* different this time; it is incorrect to apply strict historical stock market/nominal interest rate relations to shares when inflation is contained and real interest rates are well above their long-term average. In defense of what may sound a bit radical, we would simply point out that it is not unusual for the stock market/interest

Table III Japanese Acquisition of U.S. Equities (millions)

Year	Amount	Year	Amount
1978	\$ 73	1984	\$ (131)
1979	123	1985	298
1980	(153)	1986	3,305
1981	114	1987	11,365
1982	0	1988	1,923
1983	274	1989E	2,600

Source: Treasury Bulletin; U.S. Treasury Department

Figure A Real ROA and Inflation*



*Real ROA is the return on assets for nonfinancial business minus inflation (the three-year moving average of CPI inflation).

Table IV Interest Rates and P/Es

	Three-Month T-Bills		Long-Term Gov't Bond Yield	
	Regression Coefficient*	R ²	Regression Coefficient*	R ²
1960 to 1969	0.21	0.23	0.28	0.14
1970 to 1979	1.00	0.46	2.45	0.82
1986 to 1989	0.56	0.38	0.66	0.21
1960 to 1989	0.70	0.58	0.72	0.58

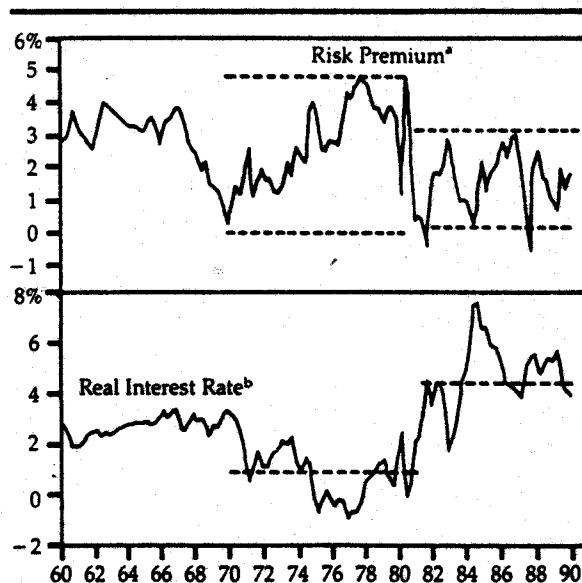
* Regression coefficient of the S&P 500 earnings yield on short or long-term interest rates.

rate relation to change. Such change was rather significant between the decades of the 1950s and the 1960s, the 1960s and the 1970s, and the 1970s and the 1980s (see Table VI).

If what we have said above is correct, many of the commonly used valuation approaches have to be supplemented. Commonly used approaches typically relate shares to nominal interest rates. These need to be supplemented by relating shares to inflation and real interest rates. When inflation is contained, it is

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Figure B The Equity Risk Premium and Real Interest Rate



*Based on quarter-end prices; equity risk premium derived from dividend discount model and actual S&P 500 price.

^bReal interest rate is the five-year government bond yield minus five-year weighted inflation rate.

Table V Valuation Statistics (S&P 500)

	Percentage Overvaluation		
	Market Peak* (1)	Aug. 1987 (2)	Current ^b (3)
<i>Interest-Rate Valuation Approaches</i>			
DDM using 5-Yr. Gov't Bond and Normalized EPS	20%	45%	35%
DDM using 5-Yr. Gov't Bond and Reported EPS	24	47	46
T-Bill Rate/Dividend Yld.	19	33	22
T-Bill Rate/Adj. Dividend Yld.	17	18	10
Int. Bond Yld./Dividend Yld.	14	47	9
Int. Bond Yld./Adj. Dividend Yld.	3	31	(1)
Long Bond Yld./Dividend Yld.	15	56	6
Long Bond Yld./Adj. Dividend Yld.	14	39	(3)
Adj. Cash Flow Yld./T-Bill Rate ^c	16	22	32
Adj. Cash Flow Yld./Int. Bond Yld. ^c	14	36	19
Adj. Cash Flow Yld./Long Bond Yld. ^c	15	46	18
Average	16	38	19
<i>Inflation Valuation Approaches</i>			
Inflation-Based DDM using Normalized EPS	19	22	12
Inflation-Based DDM using Reported EPS	22	24	20
Inflation/Dividend Yld.	11	17	(13)
Adj. Cash Flow Yld./Inflation ^c	8	17	3
Average	15	20	6

a. Average of market peaks since 1966.

b. As of March 15, 1990: T-bill rate 7.95%; five-year government bond yield 8.65%; 30-year government bond yield 8.60%; inflation (CPI) 4.5%; S&P 400 price 391; S&P 500 price 338. Numbers in parentheses mean market is undervalued. Based on S&P 500 1990 estimates of earnings (\$24.00) and dividends (\$12.10), and S&P 400 adjusted cash flow (\$52.50).

c. S&P 400.

Table VI The Changing Relation Between Stock Prices and Interest Rates

	Average Ratio			
	1950-1959	1960-1969	1970-1979	1980-1989
T-Bill Rate/Dividend Yld. ^a	0.59	1.27	1.59	2.11
Int. Bond Yld./Dividend Yld. ^a	0.81	1.49	1.89	2.51
Long Bond Yld./Dividend Yld. ^a	0.84	1.47	1.94	2.57
Adj. Cash Flow Yld./T-Bill Rate ^b	7.81	2.89	2.29	2.12
Adj. Cash Flow Yld./Int. Bond Yld. ^b	4.03	2.34	1.86	1.73
Adj. Cash Flow Yld./Long Bond Yld. ^b	3.61	2.33	1.81	1.68

a. The ratio of the interest rate divided by the S&P 500 dividend yield.

b. The ratio of the adjusted cash flow yield of the S&P 400 divided by the interest rate.

wealth to charities. There are many people who are doing that same thing, but in your mind, anyone who accumulated wealth during the 1980s must have been a crook and you would like to hand out their sentences.

The wealth issue is the hardest to address, because your comments on the subject are irrational. Just about everyone on Wall Street dreams of accumulating enough capital to be financially independent. The secret is to hold down your cost of living, save a large portion of your income, pay a full tax load and then invest the proceeds in the areas of strongest opportunity, whether that is your own business, the capital markets or real estate. Wall Street attracts entrepreneurs, and most of the money-management firms are small, employee-owned operations started by people who were able to save or borrow their initial capital. But there is a world of difference between being an employee and an entrepreneur.

I had been working as a security analyst at Merrill Lynch from 1972 to 1976, when the founders of a small money-management firm, BEA Associates, invited me into their partnership. Over the next 12 years, I took out bank loans, a second mortgage and plowed back most of my bonuses in order to boost my stake in the firm. We built one of the top performance records of the 1970s, and with the rising stock and bond markets of the 1980s, as well as new products and

services related to the pension market, the firm grew 15-fold. Yes, we were in the right place at the right time, but so were thousands of others who identified opportunities, risked their capital and prospered.

It was more than the "Lottery winner" explanation you gave. Some of the biggest opportunities in the 1980s occurred in your backyard, the Bay Area. Professors from Stanford and the University of California, Berkeley, founded some of the leading quantitative pension-consulting businesses. Silicon Valley produced hundreds of success stories in the hardware, software and biotechnology industries. And Bay Area real estate probably produced more millionaires per capita than any other section of the country. Of course, the flip side of the Bay Area prosperity was Texas, where lower oil prices and a real estate glut made the 1980s a nightmare after the boom period of the 1970s.

I hope this answers your question "How do people get rich enough to support themselves and a family, if not by greed?" I can understand your envy, but you can't deny that there were numerous opportunities available to you during the past decade.

The greed that troubled you the most centered on the LBOs and corporate restructurings. On that, I think we are in agreement. Your letter could have been developed into an opinion piece on that subject, instead of de-

generating into a personal attack on me and the others mentioned in the article.

For your information, several of those retirements turned out to be sabbaticals, as three of the five people have re-entered the business, though on their own terms. Peter Solomon formed his own investment banking firm and Laszlo Birinyi launched his own market analysis group, which is often quoted in the *Wall Street Journal*. Robin Koskinen, the would-be musician and photographer, is now vice-chairman of First Chicago Capital Markets. Andrew Krieger tried a stint with George Soros, but the relationship did not work out and he may be teaching Sanskrit. I have been busy managing my portfolio and serving as Treasurer of the Discovery Museum in Bridgeport, Connecticut. Bridgeport is Connecticut's biggest city and it has a large population of minority youngsters. They have to become literate in math and science if they are going to have a chance in life. Part of my job is to line up corporate sponsors to fund the "hands on" science exhibits and "adopt" local school classes.

In sum, I reread "One Less Rat" and I couldn't find any villains. I can understand your anger over the human toll of the LBOs and your jealousy over the wealth of some on Wall Street. But you have no right to impugn my character and integrity in your letter.

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inflation and real interest rates individually, rather than nominal interest rates, that give a better indication of fair market value. Second, if historical market/interest rate relations are less binding, then more judgment has to be applied in interpreting valuation statistics. This is a little bit disconcerting; many of the variables that influence the market are

qualitative and not subject to quantification. Valuation was a variable more subject to quantification and less subject to judgment. This, we think, is changing.

One final point. None of the above is meant to suggest that valuation doesn't matter. It does. We simply believe that in estimating the fair value of the market, the relation between

shares and the inflation rate is likely the better guide to fair value and market prospects than the relation between shares and nominal interest rates (particularly when inflation is contained and moderate). Consistent with this, an emphasis on the share price/inflation relation will indicate when valuation poses a problem.