

Which are Riskier: stocks or bonds?

The answer has varied over the past 150 years; it also depends upon the CPI. Are investors now underrating both asset classes' risks?

Livewire Markets

It's one of the most basic questions that investors face. Which are riskier: stocks or bonds? The answer is crucial because, as AQR put it ("A Changing Stock-Bond Correlation: Drivers and Implications," Q1-2023), the "relationship between stock and bond returns is a fundamental determinant of risk in traditional portfolios."

If the linkage is positive (that is, the better are bonds' returns, the bigger are stocks'), then portfolios which comprise mostly stocks, or a mixture of stocks and bonds, will suffer when bonds' returns fall. If, however, it's negative or absent (such that an increase of bonds' results is associated with a decrease of stocks' results, or bonds' returns don't affect stocks') then over the long term portfolios that comprises, say, 60% stocks and 40% bonds will likely outperform equities-only portfolios.

The weightings of stocks and bonds in an investor's portfolio are partly a matter of individual risk tolerance, long-term investment, retirement and legacy goals, etc. On the other hand, asset allocation is largely a matter of general principles which apply more or less equally to all investors. In particular, the greater is the extent to which one asset class is riskier than the other, the smaller might be the percentage of the relatively risky asset which many investors might choose to hold. Tacitly adopting two conceptions of risk, Investopedia summarises the conventional wisdom:

1. Over the long term, stocks offer higher average returns – but they also generate more variable and more frequently negative returns – than bonds.
2. In other words, bonds generally provide lower but more stable and reliable returns than stocks.
3. "For most investors, diversifying portfolios with a combination of stocks and bonds is the best path toward achieving risk-mitigated investment returns."

Leithner & Company is a conservative-contrarian investment company. We conduct our own research and draw our own conclusions. Our analysis of bonds' and stocks' risks and returns confirms the first two planks of the conventional wisdom – and thus affirms the wisdom of the third (see also How we've prepared for the next bust, 26 November 2022 and How the 60/40 portfolio outperforms, 17 October 2022).

This article also adds four vital elaborations to the conventional wisdom.

First, the risk of stocks (represented by the Standard & Poor's 500 Index) relative to bonds (U.S. 10-year Treasury), as well as the nature of the bond-stock return relationship, has varied systematically over the past 150 years: before 1958, American investors regarded

stocks as riskier than bonds; from 1958 to 1981, they considered that bonds were more risky; from 1982 to 2009, they regarded bonds as ever less risky relative to stocks; and since the GFC, the perceived risk of each asset class has been roughly equal.

Second, the riskiness of bonds relative to stocks, and the relationship of their returns, depends upon the rate of change of the Consumer Price Index (CPI). The more negative its rate of change becomes, the less volatile and the higher are bonds' returns. Indeed, during a significant amount of the time under deflationary conditions, bonds outperform stocks. Conversely, when CPI rises more than ca. 2.5% per year, bonds become riskier and their returns plunge; these conditions also crimp stocks' returns.

Third, by reasonably accurately gauging stocks' and bonds' risks, since the 1870s American investors have usually acted sensibly: as compensation for the risks they've perceived, they've demanded – and received – commensurate returns. The greater is their perception of risk, in other words, the bigger have been their subsequent returns.

Today, however, might provide a modest exception to this rule. Based upon my analysis, I draw inferences about the reasonableness of investors' current assessments of stocks' and bonds' risks. The risk is that they're underestimating today's risks and thereby overestimating tomorrow's returns.

Let's Start with a Bit of Theory

At Berkshire Hathaway's AGM in 2013, Warren Buffett compressed into two simple sentences a large and complex body of theory: "interest rates are to asset prices like gravity is to the apple. They power everything in the economic universe." Buffett was seemingly alluding to Sir Isaac Newton's discovery of gravitation: the theory allegedly occurred to him when, sitting under a tree, an apple fell on his head.

Just as matter gravitates towards the earth's centre of gravity (its core), assets' yields, prices – and thus returns – tend towards the financial world's centre of gravity (its "risk-free" rate of interest).

"When interest rates are very low," Buffett added, "there's a very small gravitational pull on asset prices." Indeed, under these conditions and like helium balloons, prices ascend. Conversely, when rates rise the downward pull strengthens – and if they lift sharply and to a high level, assets' prices plunge like lead weights.

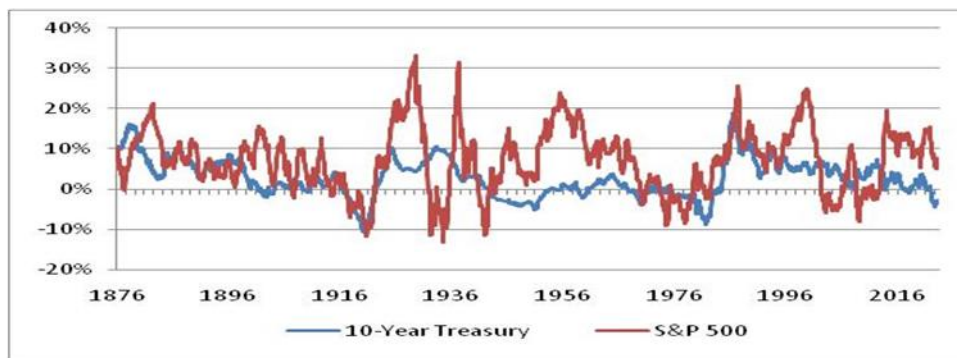
More than any other security, the 10-year U.S. Treasury bond's yield (interest rate) is the long-term "risk-free" benchmark against which investors assess assets' yields, prices and returns. No investment is completely riskless, of course, but Treasuries come closest: the chance that they fail to pay their fixed rate of interest is, for all practical purposes, zero. Moreover, if they're held to maturity then, in nominal if not CPI-adjusted terms, the probability of full repayment is practically certain.

A sustained and significant increase of the Treasury's yield places downward pressure upon assets' (including Treasuries', other bonds' and stocks') prices and returns, and a decrease of its yield tends to boost prices and returns.

Let's Now Proceed to Reality

Using data originally compiled by Robert Shiller for his book *Irrational Exuberance* (Princeton University Press, 1st ed., 2001) and updated thereafter, Figure 1 plots the "real" (that is, CPI- adjusted) total return (payment of interest or dividend plus capital gain or loss) of the S&P 500 Index and the ten-year U.S. Treasury bond. In order to remove short-term volatility and thereby clarify longer-term patterns, I've expressed real total returns as five-year compound rates of return (CAGRs). In other words, for each series I've plotted the CAGR for January 1871-January 1876, February 1871-February 1876, ..., and June 2018-June 2023.

Figure 1: Stocks' and Bonds' Total Return (CPI-Adjusted, Rolling Five-Year CAGRs), Monthly, January 1871-June 2023



Which are riskier: stocks or bonds? Over the past 150 or so years, the S&P 500's return has averaged 7.2%; the 10-year Treasury's has averaged 2.7%. Bonds are riskier in the sense that they generally underperform stocks. However, unlike the S&P 500's return, whose variation is relatively large (standard deviation of 7.8%), the 10-year Treasury's varies less (standard deviation of 4.7%). Stocks are riskier than Treasuries in the sense that their return fluctuates more – and thus the probability that they produce a sharply negative return is higher.

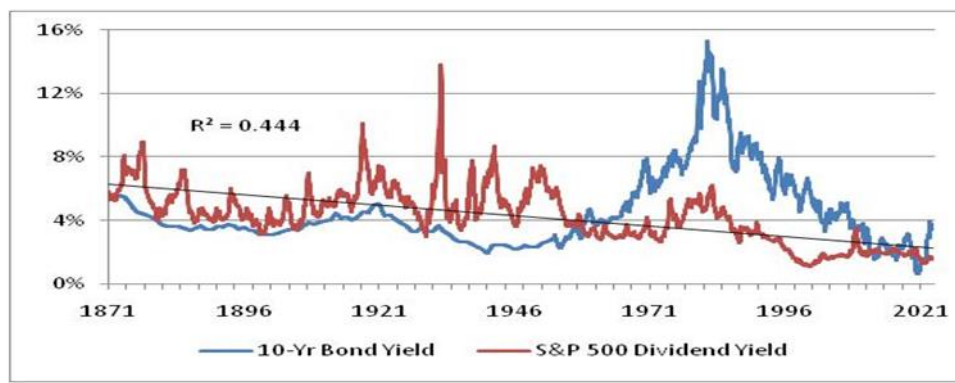
The Treasury bond's return clearly shows very long-term trends. The first was the 45-year downward leg – closely followed by stocks – from 1876 to the Depression of 1920-21 (when it collapsed to -10.8% per year). By mid-1925, however, it zoomed to 10.3%. It then commenced its second trend: the more erratic but even longer (56-year) decline to -8.9% per year in August 1981. By September of 1986, however, it zoomed to 18.8%. Then began its third trend: the 36-year downward slide to as low as -4.5% per year in mid-2022. This and other recent returns are the worst since 1982.

If the 10-year Treasury offers a "risk-free" benchmark YIELD, it's vital to appreciate (see also Figure 4) that at certain junctures it offers anything but a "risk-free RETURN."

“One Telling Measure of Investors’ Attitude Toward Risk-Taking”

Thus far we’ve considered objective measures of stocks’ and bonds’ risks: the means and standard deviations of their CPI-adjusted total returns. Let’s now proceed to a measure of investors’ perceptions of stocks’ and bonds’ risks. Figure 2 plots the yield of the 10-year Treasury bond and the dividend yield of the S&P 500 Index.

Figure 2: Bond and Dividend Yields, U.S., Monthly, January-1871-June 2023



Two results are overriding. First, and partly as a result of the Index’s falling payout ratio (for details, see Dividends aren’t a bane – they’re a boon, 20 November), over ca. 150 years its yield has steadily sagged. The second result has three facets:

1. From January 1871 to August 1957 (the only exceptions occurred during a couple of months in 1929), the Index’s yield exceeded the bond’s yield;
2. Without exception from September 1958 to January 2009, the bond’s yield exceeded the Index’s;
3. Since 2009 the two yields have mostly and approximately equalled one another.

What do these differentials signify? “One telling measure of (investors’) attitude toward risk-taking,” wrote James Grant in *The Trouble with Prosperity: A Contrarian’s Tale of Boom, Bust and Speculation* (Random House, 1996), is that until August 1958 “the dividend yield on common stocks (had always been) greater than the current yield on (ten-year) government bonds ...”

Stocks’ higher yield before August 1958, in other words, quantified investors’ perception that equities were riskier than Treasuries; as compensation for these risks, stock investors demanded yields that exceeded Treasuries’. Similarly, the bond’s lower yield during these years reflected the conviction that it was safer than stocks. In return for this perceived security, bondholders accepted lower yields than stocks’.

Which are riskier: bonds or stocks? Treasuries resemble insurance policies which, year after year, charge significant premiums (underperformance) but pay massive benefits (strong positive results and huge outperformance) during crises.

The Great Depression provided a compelling example. From the peak in September 1929 to the trough in July 1932, and adjusted for CPI, the S&P 500, including dividends, collapsed 65.2%. In contrast, 10-year Treasury bonds (including payments of interest) soared 56.3%.

The Global Financial Crisis provides a much more recent – and perhaps for that reason, even more forceful – example. From the peak in October 2007 to the trough in March 2009, the Index, including dividends and adjusted for CPI, collapsed 49.9%. Conversely, the 10-year Treasury's real total return lifted 18.8%. More generally, during recessions stocks wilt and bonds bloom (see How we prepare for – and profit from – recessions, 18 August 2023).

The Depression cast a long shadow: like today's worries about another GFC, the dread of a recurrence haunted investors throughout the 1940s and well into the 1950s. That fear herded them towards bonds (decreasing their yields) and from stocks (lifting their yields).

The realignment of yields in 1958 marked the market's belated recognition that the Depression had ended – and, moreover, that it wouldn't return. Instead, wrote Grant, “the rising risk of inflation had rendered allegedly safe and sane bonds more hazardous than equities.” On 8 August of that year, Barron's summarised the seismic shift: “because of ... the long-term inflationary trend, bonds lack their old-time appeal to individuals and, to a lesser degree, institutions.” Grant chronicles key factors which contributed to and reflected the rising risk of consumer price inflation. Three were paramount:

Fiscal policy

After the Second World War, and to a considerable extent in response to the fear of another economic and financial slump, the U.S. Government mostly declined to restore the largely-free markets that had prevailed before the Great Depression. The Employment Act of 1946 provided a key example. Its main purpose, according to a study of its origins and effects, “was to lay the responsibility for economic stability, inflation and unemployment onto the federal government.” As a result, after the war the levels and rates of change of CPI, Gross Domestic Product and unemployment, etc., were as much the U.S. Government's concern as the post office, the FBI and the atomic bomb.

Monetary Policy

Since the early-1940s, government had bulked far larger than it did in the late-1920s. Activist fiscal policy entailed far more borrowing and spending. To finance it, it also necessitated considerably greater financial market intervention – particularly in order to facilitate the Treasury's borrowing. “The reason for the low interest rates of the 1940s and

early-1950s,” explains Grant, “was that the government had put them there. For years, the Treasury and Federal Reserve had resisted a rising tendency in interest rates (and in wages and prices, too) with rules and regulations ...”

Indeed, “monetary policy was held hostage to the government’s war-swollen budget. The Federal Reserve ... had become the bond-selling arm of the government, manipulating interest rates for the benefit of the Treasury and to the detriment of the investing public. Wishing to pay the lowest rates possible, the Treasury notified the Federal Reserve what those rates would be ...”

The Treasury was able to do this even during the Korean War – when latent consumer price inflation became manifest. In February-May 1951, CPI’s 12-month rate of increase exceeded 9%; in contrast, and presumably believing that it would soon fall (it did, below 2% in early-1952, under 1% in 1953-54 and below 0% in 1954-55), its 10-year bond’s yield remained steady at 2.5-3.0%.

Investors’ Perceptions

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Investors’ Perceptions

For more than a decade after 1945, noted Grant, and in response to the government’s borrowing and spending, “signs of the next inflation were everywhere except, critically, in the minds of bond buyers. What were (they) thinking? Perhaps about nothing but the observed, 25-year long tendency of interest rates to fall.”

Figure 2 confirms the trend: the 10-year Treasury bond’s yield peaked at 5.09% in January 1921; from there it fell, steadily and almost continuously, to 1.99% in February 1941; it then recovered somewhat but nonetheless remained below 3.0% until June 1956.

In *A History of Interest Rates* (4th ed., Wiley, 2005, updated by Richard Sylla), Sidney Homer described the mentality of bond buyers during the decade after 1945: “with the

passage of the war years, confidence grew in the ability of the government to maintain low interest rates and bond yields. If this could and would be done, there was no reason to accept less than 2.5%” – and, he might have added, no possibility of receiving more than 3.0%.

“Loaded with wartime wages and short of things to spend them on,” Grant elaborates, “Americans were more liquid than they would be for the next half-century (he was writing in the mid-1990s, when governments and households alike were much more solvent than they are today). As investors still held a collective grudge against the stock market for the losses it had meted out in 1929-32 and 1937-38, an obvious outlet for this reservoir of liquidity was government securities, even at the prevailing low yields. For all intents and purposes, foreign investment markets were inaccessible.”

Grant concludes: “what was the alternative? It scarcely paid to buy investment-grade corporate bonds. They yielded only a little more than (a Treasury bond). And private businesses, unlike the Treasury, could, and did – who could forget the 1930s? – default.”

Slowly during the 1950s and suddenly in 1958, however, an option did (re)emerge. Grant cited two “landmark” (I’d say bellwether) developments, both of which occurred in 1958 and exemplified the shift of the investment world’s tectonic plates. First, on 29 May Lehman Brothers launched The One William Street Fund (named after its downtown Manhattan office address). Intending to raise \$40 million, Lehman was deluged with \$221 million (ca. \$2.75 billion in today’s dollars) from aspiring indirect owners of stocks – making it “the biggest initial public offering in the history of the mutual fund business up to that time.”

Another sign of the times was a “remarkable” (according to Grant) article by Ernest Havemann, “The People’s Stock Market,” which appeared in Life magazine on 15 September. It resembled Edgar Smith’s book *Common Stocks as Long Term Investments* (Macmillan, 1924). It was the Roaring Twenties’ version of James Glassman’s and Kevin Hassett’s *Dow 36,000: the New Strategy for Profiting from the Coming Rise in the Stock Market* (Crown, 1999), which appeared during the Dot Com Bubble.

But their difference was crucial: Havemann argued that, thanks to economic and financial intervention and consequent incipient consumer price inflation, stocks were entering into a new era of superiority over bonds; Smith, in contrast, had contended that equities always had (and he and Glassman and Hassett insisted that they always would) outperform debt obligations.

Yet Havemann had to consider and put to rest the fear of something that Smith couldn't anticipate (and which Glassman and Hackett simply ignored): a severe and extended economic and financial crisis.

Grant writes that Havemann “addressed a public that still, despite its quickened interest in mutual funds, vividly remembered the 21-year period in which stocks did not beat bonds. This anomalous rough patch had begun in 1929, only five years after the first edition of Smith’s book showed how improbable it would be. Thus, Havemann tried to exorcise the ghosts of the (Great Depression).”

He did so by emphasising what had changed – namely greater regulation of the economy and financial markets – since the Roaring Twenties. “There are very few all-out bears at the moment, chiefly because ... our economy has changed so thoroughly that it is futile to try to understand it by historic analogy ... Most Wall Streeters believe we are in a New Era of business finance and securities, and they are not at all upset by reminders that past prophecies of a New Era have always ended in bitter disappointment.”

Havemann was convinced, Grant writes, that interventionist fiscal and monetary policies “had introduced a powerful inflationary bias into business activity and financial markets alike.” In Havemann’s words, “... wages and prices have kept right on rising despite the recession (which, the National Bureau of Economic Research reckoned, had commenced in August 1957 and concluded in April 1958). Inflation makes savings accounts and bonds look less attractive, (and) while stocks are by no means a perfect hedge against inflation, they are one of the very few hedges of any kind that the average man can use. A good many stocks seem to have been bought in this spirit. ‘Just inflation alone,’ one prominent market observer said last week, ‘will some day carry the Dow (Jones Industrial Average) over 1,000.’”

Grant’s assessment of Havemann’s prescient article concludes: “once in a blue moon the world does change and the public does accurately take the measure of it. Havemann’s contribution was to identify the fall of 1958 as one of those rare financial moments.”

More Theory and Evidence

In the late-1950s, American investors increasingly feared that (1) consumer price inflation, which apart from the First and Second World Wars had mostly been asleep since the mid-19th century, had swung its legs out of bed, begun to walk, would soon trot and might eventually gallop; and (2) the “risk free” rate of interest would therefore rise and bonds’ total returns fall. In short, investors increasingly eschewed bonds because the correlation of (a) their yields and CPI’s rate of increase was positive and (b) bonds’ total return and CPI’s rate of increase was negative. Were these anxieties realistic?

Figure 3: Annualised Bond Yields and CPI (Five-Year CAGR), Monthly, January 1876-June 2023

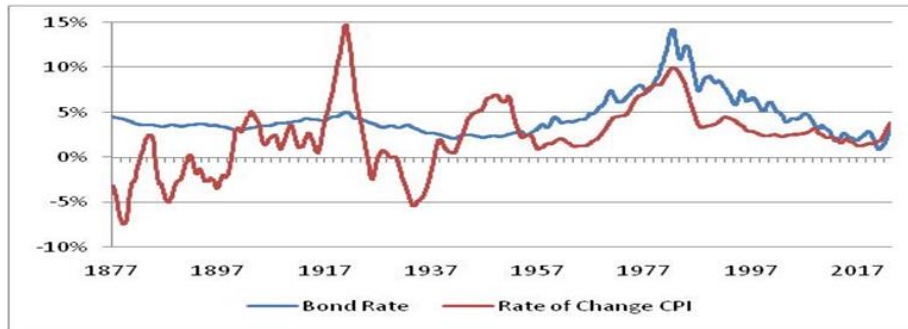


Figure 3 plots the 10-year Treasury’s yield and the rate of growth of the CPI from January 1876. (In order to remove relatively large 12-month fluctuations of the CPI before the 1930s, it expresses CPI’s growth as a five-year compound annual growth rate.) The two series are positively correlated ($r = 0.46$; the correlation from January 1876 to August 1958 is 0.84). Had rolling 12-month percentage changes been retained, the correlation would have been weaker but still significant ($r = 0.25$ for the entire period and $r = 0.26$ for January 1871-August 1958).

Figure 4 plots the bond’s CPI-adjusted total return and the CPI; it expresses both as five-year CAGRs. The two series are strongly inversely correlated ($r = -0.75$): the higher CPI’s CAGR rises, the further the Treasury’s return falls, and vice versa.

Figure 4: 10-Year Treasury Total Returns and CPI (Five-Year CAGRs), Monthly, January 1876-June 2023



Two Crucial Years and Three Eras

Following Grant, a summary measure of investors’ attitude regarding the risks of stocks relative to bonds is the “yield differential” – the S&P 500’s yield minus the 10-year Treasury’s yield. The riskier are shares compared to bonds (or, equivalently, the safer are bonds relative to shares) the more positive is the differential. Conversely, the safer are equities relative to bonds (or, equivalently, the riskier are bonds compared to shares) the

more negative is the differential. And if investors perceive that bonds and stocks are equally risky, the differential is zero.

Figure 5: Stocks' Yields Net of Bonds' Yields, U.S., Monthly, January 1871-June 2023

Figure 5 plots the differential for each month since January 1871. Over the entire period, the yields' average disparity has been miniscule (-22 basis points, which, visually, is so close to 0% that I've excluded it from the plot).

Which are riskier: bonds or shares? By this measure, on average over the 150 or so years, investors have regarded them as approximately equally risky.

The differential's mean before 1958, however, is eight times bigger than its overall mean: during that era, the S&P 500's dividend yield averaged 5.31%, the bond's averaged 3.53% and thus the differential averaged $5.31\% - 3.53\% = 178$ basis points. Throughout these years, as we've seen, investors regarded stocks as riskier than bonds. And at a few points, perceptions of stocks' riskiness zoomed to extreme levels.

Above all, in June 1932 the S&P 500's dividend yield reached 13.84% and the 10-year Treasury's 3.53%; hence the differential reached its all-time high of 1,030 basis points. Never before or since then have stocks been regarded as riskier relative to bonds (and bonds as safer relative to stocks).

From 1958 to 1981 the differential became increasingly negative; it reached its all-time low in August 1981. In that month, the S&P yielded 5.00%, Treasuries 14.94% and thus the differential was $5.00\% - 14.94\% = -994$ basis points.

Never before or since August 1981, in other words, had investors been so bearish towards bonds relative to stocks. Investors concluded that bonds didn't offer a risk-free return; they threatened return-free risk!

That's saying something: according to the NBER, a recession which would last until November 1982 commenced in July 1981, and a bear market was in full swing; hence investors were also extremely bearish towards stocks. Indeed, in that month Shiller's cyclically-adjusted PE (CAPE) ratio fell to 8.8 – among the lowest levels since the nadir of the Great Depression in 1933. The bond “insurance” that paid massive benefits in the Depression and GFC defaulted, in effect, in 1981.

Over the next quarter-century, however, the differential became steadily less negative and reached 0% in December 2008. Since then it's averaged -48 basis points, risen as high as 150 and (in August of this year) fallen as low as -417. I thus discern three eras:

1. From 1871 to 1957, the yield differential was uniformly positive: stocks' yields exceeded bonds' yields; hence investors regarded stocks as more risky than bonds;
2. From 1958 to 1981, the differential was increasingly negative: bonds' yields increasingly exceeded stocks'; hence investors regarded bonds as ever more risky than stocks;
3. From 1982 to 2009 (which for simplicity in the analysis that follows I'll extend to the present), the differential steadily returned to zero; hence investors increasingly considered bonds and stocks (and since 2009 have mostly regarded them) as equally risky.

How CPI's Rate of Change Affects the Yield Differential

Which are riskier: bonds or stocks? The answer to this question depends not just upon the era in question: it also depends upon CPI's rate of change. I sorted the data by the CPI series (five-year CAGR) in Figure 3; I then divided the data into quintiles (five segments with equal – net of rounding – observations), noted the range of the CPI CAGRs in each quintile and computed the mean CPI and differential in each quintile. Table 1 summarises the results.

Table 1: the Yield Differential, by Quintile of CPI (Five-Year CAGR), 1876-2023

Quintile	Range CPI CAGR	Mean of CPI CAGR	Mean Differential
Lowest	-7.93% to -0.12%	-3.12%	153 bps
#2	-0.12% to 1.69%	1.06%	70 bps
Median	1.69% to 2.59%	2.22%	-43 bps
#4	2.59% to 4.53%	3.52%	-192 bps
Highest	4.53% to 15.66%	7.31%	-124 bps

Approximately 40% of the time (quintiles #1 and #2), investors regard bonds as safer than stocks; another ca. 40% of the time (quintiles #4 and #5), investors regard bonds as riskier than stocks; during the remaining 20% of the time (the median quintile) they regard the two assets as roughly equally risky.

Specifically, investors regard bonds as less risky and stocks more risky during times of deflation (decreases of CPI; quintile #1) and when CPI increases slowly (up to 1.7% per year; quintile #2). Conversely, they regard bonds as more risky and stocks as less risky when CPI rises 2.6% or more per year (quintiles #4 and #5).

The Stock-Bond Return Relationship

In this article's opening paragraph I noted that the relationship between stocks' and bonds' returns is a fundamental determinant of a portfolio's overall risk. We're now in a

position to ask: given bonds' and stocks' relative risks, what's the nature of that relationship?

In order to answer that question, I (1) converted the 10-year Treasury's total, CPI-adjusted monthly return into a rolling five-year CAGR; (2) matched this series to the S&P 500's rolling five-year CAGR; (3) sorted these two series by the bond's return; (4) divided the series into quintiles and (5) computed each series' average CAGR within each quintile. Figure 6 summarises the results.

Figure 6: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, January 1876-June 2023

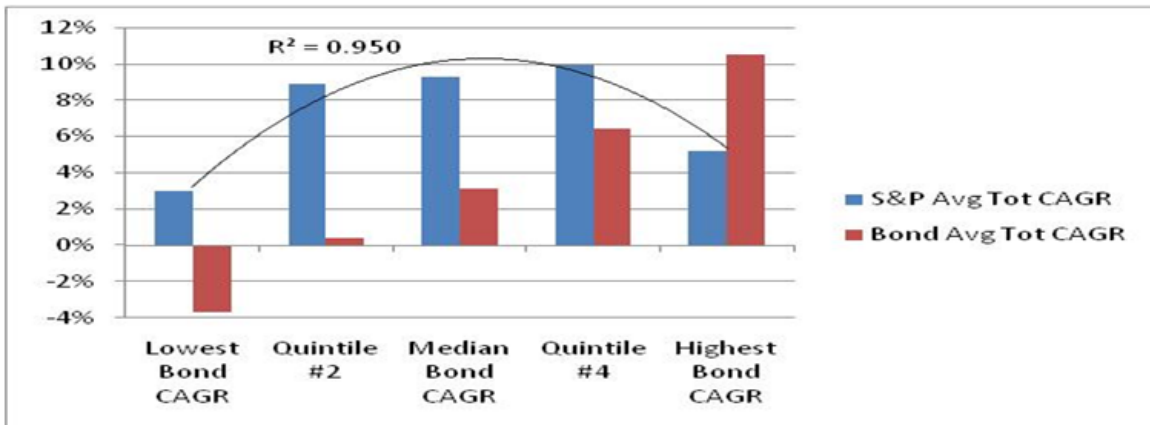
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As bonds' returns rise, so too in general (but see below) do stocks': the relationship's direction is positive and its correlation is very strong. In each quintile, stocks outperform bonds; equally unsurprisingly, as bonds' total return rises their underperformance narrows.

The Stock-Bond Relationship during Three Eras

Notwithstanding its overall and strong positive direction over the past 150 or so years, the relationship between stocks' and bonds' returns depends upon the era under consideration. I divided the data into three segments: (a) January 1876-August 1958, (b) September 1958-August 1981 and (c) September 1981-June 2023. For each segment I replicated the analysis summarised in Figure 6; the results appear in Figures 7a-7c.

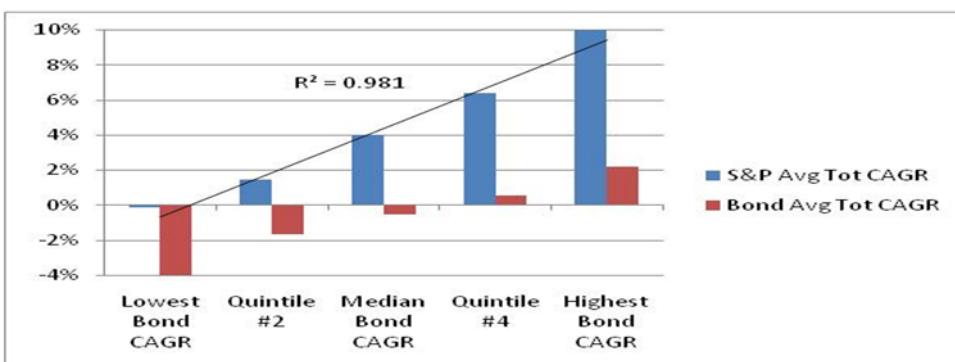
Figure 7a: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, January 1876-August 1958



From 1876 to 1958, investors regarded stocks as riskier than bonds. During this era, stocks' real five-year CAGR averaged 9.3% per year (versus 7.2% from 1876 to 2023), and bonds' averaged 2.9% (versus 2.7% for the entire period). As a result, stocks outperform bonds 80% of the time. Moreover, 60% of the time (quintiles 2-4) an increase of bonds' returns don't significantly affect stocks' returns (Figure 7a).

In the second era, from 1958 to 1981, bonds were regarded as riskier than stocks – but throughout the 1970s investors were often (and by the early-1980s were extremely) bearish about stocks. During these years, stocks' real five-year CAGR averaged just 4.4% per year and bonds' averaged -0.8%; indeed, bonds' real five-year return was negative in three of the five quintiles. Both stocks' and bonds' generated sub-par (compared to the entire 150-year period) returns. Yet stocks strongly outperform bonds in all quintiles, and the stock-bond relationship is linear and extremely strong (Figure 7b).

Figure 7b: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, August 1958-August 1981

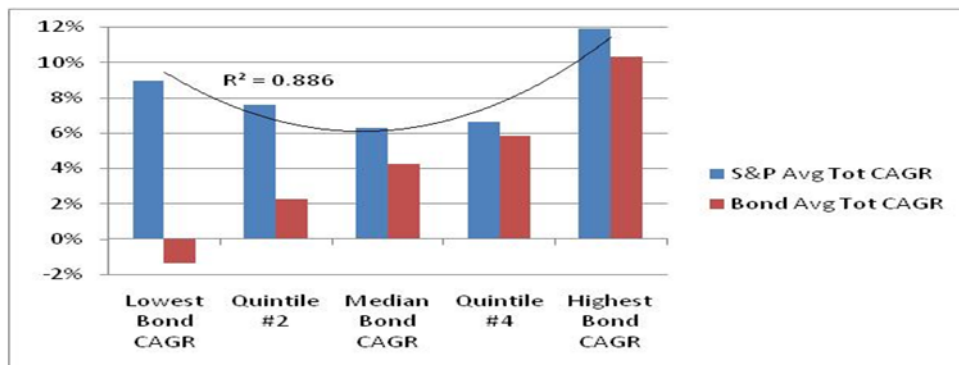


Finally, in the third era, from 1981 to 2009, investors' perception of bonds' riskiness abated; as a result, since 2009 they've regarded stocks and bonds as approximately equally risky (for convenience, and without significant effect upon results, I've extended

analysis of this third era to June 2023). Stocks' real five-year CAGR averaged 6.3% per year, and bonds' averaged 4.2%.

Stocks continued to outperform bonds across all five quintiles – but as bonds' performance improved the extent of their underperformance abated. Moreover, 80% of the time (in quintiles 1-4) an increase of bonds' returns tended to decrease stocks' returns (Figure 7c).

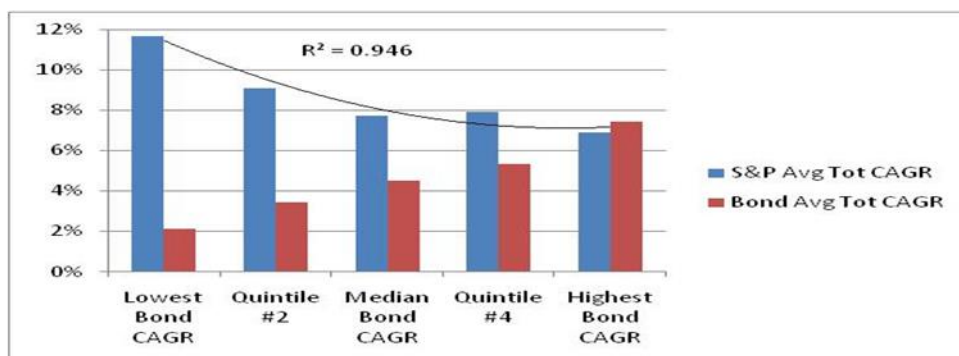
Figure 7c: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, September 1981-June 2023



The Stock-Bond Relationship Net of CPI

Notwithstanding the overall and strong positive relationship over the past 150 or so years, the relationship between stocks' and bonds' returns also depends upon CPI's rate of change. I replicated the analysis in Figure 6 for each of the quintiles in Table 1. Figures 8a-8c summarise the results (for reasons of brevity, but with no loss of substance, I show the results for the lowest, median and highest quintiles).

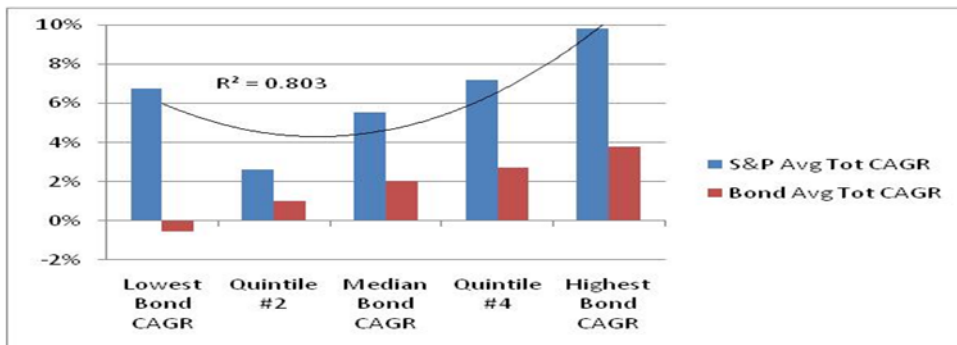
Figure 8a: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, Lowest Quintile of CPI, January 1876-June 2023



During times of deflation, the bond-stock relationship is negative: as bonds' return increases, stocks' return decreases. And when bonds perform best they slightly outperform stocks (Figure 8a).

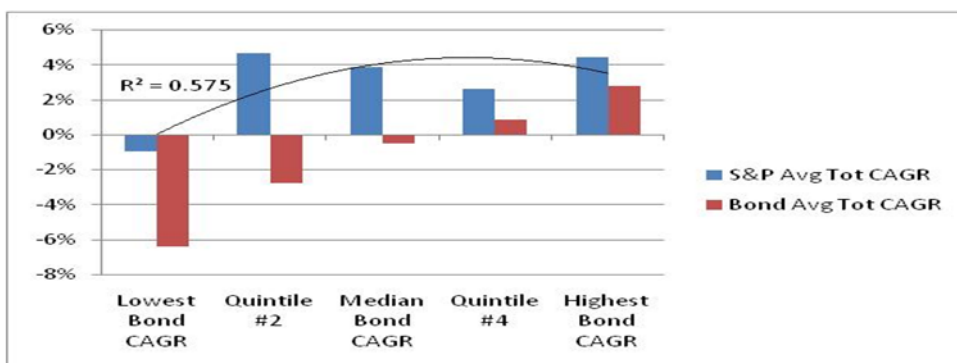
In the median quintile, regardless of bonds' returns stocks strongly outperform bonds. The bond-stock relationship is somewhat ambiguous: across quintiles 1-4 it's weak, but in quintiles 2-5 it's strongly positive (Figure 8b).

Figure 8b: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, Median Quintile of CPI, January 1876-June 2023



In the highest quintile of CPI's CAGR, regardless of bonds' returns, stocks continue to strongly outperform bonds. Indeed, under these conditions bonds generate losses 60% of the time. But stocks' returns are tepid, and the bond-stock relationship mostly disappears (Figure 8c).

Figure 8c: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Bonds' Returns, Highest Quintile of CPI, January 1876-June 2023

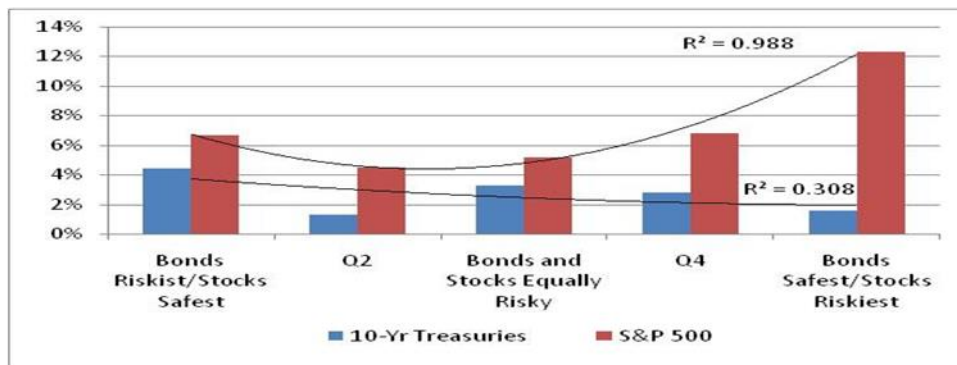


Current Risks and Future Rewards

For the most part over the past 150 years, investors have correctly gauged stocks' and bonds' current risks. Broadly speaking, they've acted rationally: as compensation for bonds' and stocks' risks, they've demanded – and received – higher returns.

To demonstrate this crucial point, I (1) sorted the data according to the yield differential; (2) divided the data into quintiles, and (3) for each quintile computed bonds' and stocks' real five-year CAGR during the next five years. Figure 9 summarises the results.

Figure 9: Stocks' and Bonds' Average CPI-Adjusted Total Returns (Five Year CAGR) by Quintiles of Yield Differential, 1871-2023



It clearly reveals two things. First, the lower has been the current perceived riskiness of bonds (that is, the more positive has been the yield differential during a given month since 1871, and reading across from left to right), the lower have been bonds' returns during the next five years. Equivalently, reading from right to left, the higher is today's perceived riskiness of bonds, the higher have been their subsequent returns. Secondly, the higher is stocks' apparent risk the (mostly) higher are their future return.

Perceived current risk and objective future reward are mostly positively related. In general, investors' assessment of bonds' and stocks' current risks have (in light of their subsequent returns) been roughly accurate, and at crucial junctures, and as we've seen, they've reached extremes.

The first one, as we saw in Figure 5, occurred in June 1932: the S&P 500's dividend yield reached 13.84% and the 10-year Treasury bond 3.53%; hence the differential attained its all-time high of 1,030 basis points. Never before or since then have stocks been regarded as riskier relative to bonds (and bonds as safer relative to stocks).

Figure 9 implies that June 1932 was one of the best times in the past 150 years to buy stocks, and the historical record agrees: during the next 5 years the S&P 500's CAGR was an astounding 31.7% per year.

The second extreme, as we also saw in Figure 5, occurred when the yield differential reached its all-time low in August 1981. In that month, the S&P yielded 5.00%, Treasuries 14.94% and thus the differential was 5.00% - 14.94% = -994 basis points. Never before or since August 1981, in other words, had investors been so bearish towards bonds relative to stocks.

Figure 9 also implies that August 1981 was one of the best times in the past 150 years to buy 10-year Treasury bonds. Again, history strongly agrees: during the next 5 years their CAGR was an astonishing 18.8% per year. More generally, buying at any time in 1981 and

1982 generated very large returns (CAGRs during the next five years of at least 12.5% per year).

Implications

What do this article's results imply about today's risks and tomorrow's returns? In the middle of this year, James Grant, publisher of Grant's Interest Rate Observer, reckoned that "we are embarked on a long cycle of rising rates" ("Jim Grant Warns of a 'Generation-Length' Rise in Interest Rates," Bloomberg, 5 June). At a conference in November, Marc Faber, who publishes The Gloom, Boom & Doom Report, added: "we are in an uptrend in inflation and ... interest rates that will be interrupted from time to time by countertrend moves, ..., but the long-term trend in the next 20 to 30 years is for inflation to accelerate and for interest rates to move up."

We at Leithner & Company are very sceptical about predictions regarding reversals of generational trends, and whether they're made by sages or statistical models (see, however, Farewell low "inflation" and interest rates? 20 February 2023 and Why inflation is and will remain high, 15 August 2022). On 18 January 2018, in an interview with CNBC, Warren Buffett uttered what are probably the wisest words on this subject: "there's nobody whose predictions on interest rates I would pay attention to, even myself, even Charlie." As much as we respect Buffett, we also take Grant seriously; if he's correct, the implications for assets' prices and returns are momentous.

Let's therefore conclude where we began – with Buffett's insight that "interest rates are to asset prices like gravity is to the apple. They power everything in the economic universe."

"The value of every business, the value of a farm, the value of an apartment, the value of any economic asset," he stated at Berkshire's AGM in 1994, "is 100% sensitive to interest rates. The higher interest rates are, the less that present value is going to be." In June of this year, the 10-year Treasury's nominal yield (3.5%) was arguably much too low – and thus assets' prices too high. As it was in the 1940s and 1950s so it's been since the GFC: the Fed has attempted to suppress it. Consequently, ironically and hardly for the first time, the "risk-free" yield has masked risk!

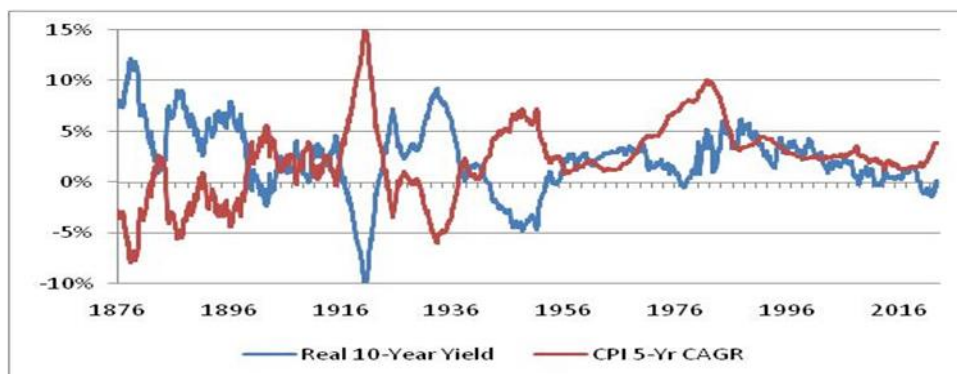
Throughout the 152.5 years from January 1871 to June 2023, the 10-year Treasury's "real" yield – that is, its nominal yield net of CPI's average rate of change – has on average been positive (Table 2). Its nominal yield averaged 4.5% and CPI's rolling 12-month percentage change averaged 2.3%. Hence its "real" yield averaged $4.5\% - 2.3\% = 2.2\%$. Measuring consumer price inflation as a rolling 5-year CAGR, since 1876 it's averaged 2.2%. By this measure, the real yield has averaged $4.5\% - 2.2\% = 2.3\%$.

Table 2: Summary Statistics, Four Eras and 12 Months to June 2023

	Jan 1871/76 to Jul 1958	Aug 1958- Aug 1981	Sep 1981- Jun 2023	Jan 1871- Jun 2023	12 Months to Jun 2023
Avg 10-Yr Yield	3.5%	5.1%	5.4%	4.5%	3.5%
CPI Avg 12mo	1.2%	6.4%	2.9%	2.3%	6.5%
CPI Avg 5-Yr CAGR	1.1%	4.3%	3.2%	2.2%	3.9%
Real 10-Yr Yield (CPI Avg 12 mo)	2.3%	-1.3%	2.5%	2.2%	-3.0%
Real 10-Yr Yield (CPI 5-Yr CAGR)	2.4%	0.8%	2.2%	2.3%	-0.4%

During the twelve months to June 2023, in contrast, the yield averaged 3.5% and CPI's average rate of change (rolling 12-month percentage) averaged 6.5%. Hence the Treasury's CPI-adjusted yield averaged $3.5\% - 6.5\% = -3.0\%$. In the five years to June 2023, CPI's CAGR was 3.9% per year. By this measure the real yield was $3.5\% - 3.9\% = -0.4\%$. That's among the lowest in more than 40 years (Figure 10).

Figure 10: "Real" Treasury Yield and Consumer Price Inflation, January 1876-2023



In his first public comments since his term as Governor of the RBA expired in September, Philip Lowe spoke his mind: at a conference of central bankers in Hong Kong on 27 November, he expressed his concern that central banks haven't lifted their policy rates sufficiently to cause consumer price inflation to decelerate within its target band. He added that the credibility of central banks such as the RBA will suffer if they fail to reach their CPI targets by 2025.

"I hope that most central banks have done enough, but I'm worried that they haven't ... I still see plenty of upside risks to inflation." Referring among other things to CPI and rates of interest, Lowe concluded: "the coming years are going to be much more difficult than the previous years."

Let's assume that during the next few years the 10-year Treasury's real rate and CPI's 12-month average rate of increase will regress to their 150-year averages of 2.2% and 2.3% respectively. If so, then we're also assuming that the Treasury's nominal yield rises to 4.5%. Alternatively, if we're less bullish about CPI's deceleration and instead assume that its rate of growth recedes to 3% per year, then (assuming that we also expect a real yield

of 2.5%) we're assuming a nominal yield of 5.5%. Notice in Table 2 that from August 1958 to August 1981 the risk-free rate was also negative – and that CPI's growth averaged 4.3-6.4% and the nominal yield 5.1%.

I'll spare you a detailed description, but under a range of plausible circumstances, most of which entail positive real yields, CPI growth of 2-3% and consequently nominal 10-year Treasury yields of more than 4.5%, Shiller's data imply sub-par (by most long-term historical averages) future returns. The total real return (CAGR for the next five years) of the S&P 500 falls within the range $4.0\% \pm 1.0\%$, and the Treasury's within the range $0.0\% \pm 1.0\%$.

Of course, it's hardly certain that the real yield will rise; after all, it's been trending downward since the late-1980s (Figure 10). In other words, for more than 30 years the nominal – that is, the “risk-free” – yield has fallen more quickly than CPI has decelerated. On the other hand, since 1982 the real yield and CPI's five-year CAGR have been correlated ($r = 0.44$). CPI's recent sharp acceleration, assuming that its correlation with the real yield remains intact, thus implies a subsequent increase of the real rate – and thus downward pressure upon assets' prices.

Which are riskier: bonds (as represented by the 10-year Treasury) or stocks (S&P 500 Index)? Since the GFC, investors have regarded each asset class as approximately equally risky. From a long-term historical point of view, it seems to me that the risk is that investors are presently underestimating both bonds' and stocks' risks – and thereby overestimating their future returns.

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*All prices and analysis at 11 December 2023. This document was originally published on Livewire Markets website on 11 December 2023. This information has been prepared by Leithner & Company Ltd and uses data originally compiled by Robert Shiller for his book *Irrational Exuberance* (Princeton University Press, 1st ed., 2001) and updated thereafter. The content is distributed by WealthHub Securities Limited (WSL) (ABN 83 089 718 249)(AFSL No. 230704). WSL is a Market Participant under the ASIC Market Integrity Rules and a wholly owned subsidiary of National Australia Bank Limited (ABN 12 004 044 937)(AFSL No. 230686) (NAB). NAB doesn't guarantee its subsidiaries' obligations or performance, or the products or services its subsidiaries offer. This material is intended to provide general advice only. It has been prepared without having regard to or taking into account any particular investor's*

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