INVESTOR ALERT

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Two Yield Curve Gurus, Duke Professors, Differ on Recession Signal

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"Two Duke professors walk into a bar and dispute the economic signal given by today's inverted yield curve..."

That's not the funniest of opening lines to a joke, but in all seriousness, the debate is real and relevant. The question: Is an inverted Treasury yield curve a reliable indicator of a coming recession—or not?

First, some relevant background. When I founded IFI in February 2000, the yield curve was a core feature of the firm's forecasting models. We developed a model to forecast the curve itself (for the benefit of fixed income managers) but more importantly, found a solid empirical basis for using the initial shape of the curve to forecast a range of other crucial variables, such as the business cycle, profits, commodities, currencies, Fed policy, bonds, and equities (including broad indexes, sector rotation, value versus growth, and large cap versus small cap). In 2000 the evidence was strong already that the yield curve was the most powerful, accurate, market-based forecasting tool; evidence in its favor has only

Figure One

The U.S. Yield Curve Spread* and Recent Recessions

daily, in basis points, December 2005 - January 2023

* Yield Curve Spread (YCS) in basis points: 10-year T-Bond Yield minus 3-month T-Bill rate

accumulated and become more definitive over the past two decades.

After two decades of research and real-time use, IFI has become the world's leading expert on the yield curve and the foremost practitioner of its many applications to investment strategy and portfolio construction (see "Select IFI Reports on the Forecasting Power of the Yield Curve," page 7). Inverted curves accurately anticipate economic (and profit) recessions with a lag of 12-15 months and since equities anticipate the business cycle, inverted curves also signal bearish equity returns (see "Select IFI Reports on Recession," page 8).

There's solid logic behind the facts. Since our inception in February 2000, we've correctly forecasted all three subsequent U.S. recessions and didn't signal any recession that didn't occur.[1] The U.S. yield curve was inverted prior to the famous stock-price crash of 1929 (and subsequent Great Depression of 1930-33), inverted as well prior to the many subsequent recessions, and remarkably, was inverted prior to all eight of the U.S. recessions that have occurred since 1968 (with no false signals).

U.S. Treasury yield curve inversion and recession risk are again topical because the curve has inverted yet again, due largely to Fed rate hiking (+4% points in its upper target range since May 2022, to 4.5% at present). The 3-month T-Bill rate has been above the 10-year T-Bond yield since October 25—and it's been getting worse, due partly to a decline in the bond yield.[2] The yield curve spread (YCS) is now -123 basis points versus -65 basis points on December 21st and -58 basis points on November 21st (Figure One, page 1), which is more negative than before the recessions of 2007-2009 and 2020. Historically, the greater the depth and duration of inversion, the deeper and longer is the subsequent recession.

For competitive reasons, IFI is pleased that the yield curve forecasts so well and also that myopic, in-the-weeds non-experts are yield-curve denialists; but today's concrete-bound media prefer to publicize myopic denialists.

By now the meaning of inverted yield curves is better known among economists, investment strategists, and central bankers, but most of them still fail to consult the relevant yield spread or optimal lead time; most use the faulty 10-2 year yield spread and most believe recession becomes imminent once the curve inverts (no lag). Most are also keen to insist that an array of alleged *confounding* factors will nullify the signal "this time" and preclude recession; *each time*, they say "it's different this time."

For competitive reasons, IFI is pleased that the yield curve forecasts so well and that myopic, in-the-weeds non-experts are yield-curve denialists; unfortunately, today's concrete-bound media prefer to publicize myopic denialists.

Campbell Harvey, for many years (and currently) a prestigious finance professor at Duke's business school, was a pioneer in the 1980s and 1990s in research on the predictive power of the yield curve (*aka*, the "term structure of interest rates").[3] It was the topic of his 1986 dissertation at the University of Chicago business school).[4] I first became aware of Harvey's yield curve work when he published "The Term Structure Forecasts Economic

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[1] Richard M. Salsman, "Why the U.S. Yield Curve Reliably Predicts U.S. Recessions," American Institute for Economic Research, September 30, 2019.

[2] The 10-year T-Bond yield has declined by 82 basis points since October 25, from 4.25% to today's yield of 3.43%. Meanwhile, the Fed Funds rate has been raised 125 basis points to 4.33%, while the 3-month T-Bill rate has increased by 50 basis points to 4.66%.

[3] Harvey's entire work can be retrieved at his website. Those pertinent to the yield curve, beyond his 1986 dissertation, appear at a subsite and are as follows (chronologically: 1) "The Real Term Structure and Consumption Growth," *Journal of Financial Economics* (1988); 2) "Forecasts of Economic Growth from the Bond and Stock Markets, *Financial Analysts Journal* (September/October, 1989); 3) "The Term Structure and World Economic Growth," *Journal of Fixed Income* (1991); 4) "The Term Structure Forecasts Economic Growth," *Financial Analysts Journal* (May/June, 1993); and 5) "The Relation Between the Term Structure of Interest Rates and Canadian Economic Growth," *Canadian Journal of Economics* (1997). He hasn't focused on the yield curve since 1997 but makes many media appearances when the yield curve inverts. For example, see "Duke Professor Who Uncovered Yield-Curve Indicator Says Next Recession Won't Be So Bad," *MarketWatch*, October 7, 2019. We also forecasted the recession of 202; see "The Recession of 2020-21," *Investment Focus*, November 18, 2019.

[4] Campbell Harvey, "Recovering Expectations of Consumption Growth from an Equilibrium Model of the Term Structure of Interest Rates" (University of Chicago Graduate School of Business, 1986). The chairman of Harvey's committee was Gene Fama, a pioneer in the efficient markets hypothesis (EMH), which stresses the information content (and forecasting power) of market prices. Fama won the Nobel Prize in economics in 2013 and today (at the age 83) still teaches at Chicago's business school.

Growth" in the *Financial Analysts Journal* of May/June, 1993. The timing was fortuitous, as I'd just earned my CFA designation (and thus subscribed to that journal) and had just begun working in the investment forecasting business, at the supply-side firm H.C. Wainwright Economics in Boston (HCWE). Management there included late 1970s PhDs from the business school at the University of Chicago, where Harvey got his Ph.D. in 1986.

HCWE never fully realized the full forecasting power of the yield curve, but I did so and when I left the firm after seven years and started my own in 2000, I used the curve as a foundation for IFI's inter-market forecasting system. In the three decades since first reading Harvey's work in 1993 I've become an expert on the yield curve. In 2015 I also became a Duke professor. Harvey and I have exchanged e-mails over the years, and he's seen some of my yield curve reports, but we don't work closely together.

Harvey's work is worthy of more intensive discussion today not only because he's a fine researcher, esteemed professor, and yield curve pioneer but because the U.S. curve has inverted again and *for the first time Harvey is saying he doesn't expect inversion to be followed by a recession.* "My yield-curve indicator has gone code red," he told *Bloomberg* last week, "and it's 8 for 8 in forecasting recessions since 1968—with no false alarms. I have reasons to believe, however, that it is flashing a false signal."[5]

Unfortunately, Harvey sounds like the many non-expert denialists over the years who've insisted "it's different this time." It's odd, because he knows the yield curve has correctly forecasted all eight U.S. recessions since 1968, that it hasn't given a false signal, that the relevant spread is between the 10-year T-Bond and 3-month T-Bill, and that the lead time from inversion to recession is long. Yet he's now arguing that today's deeply inverted curve *won't* precede a recession due to other factors—that it'll be wrong for the first time in *fifty-five* years.[6]

This is important news, coming from an important personage in finance. Dr. Harvey's reasons for doubt are worth exploring because he's an expert who hasn't wavered before—and because at IFI we're *not* in doubt about the signal. Before assessing his specific doubts, let us note how he views methodology. He tells *Bloomberg*: "In science we use models all the time, and they're simplifications of reality. Part of the skill of the scientist is to know when to deploy the model and when not to—in other words, to know the limitations of the model. And maybe I'm in a good position of knowing the limitations, given that it's my model." If so, he should be obliged publicly (unless his model is proprietary) to divulge whether his model is a *regression* model, if so whether it's a *multi-factor* model (not a single factor like the yield curve), and if so, what the factors are and whether they're significant statistically, economically, and financially.

What are the reasons he's now giving for rejecting the signal? He names seven.[7]

1) "Strong labor market." Harvey cites a currently strong U.S. labor market—what he calls "labor excess demand," or a labor shortage. That would imply wage and price controls, but we don't have those. It's true that the government is paying many Americans not to work (as it has since Covid lockdowns) and that labor force participation is low. But that means people aren't producing as much as they could, which hardly precludes them from producing *even less* over the coming year or two—the very *definition* of recession. Moreover, history makes clear that employment is a cyclically *trailing* macro-variable,[8] not an indicator (let alone a forward-looking market price differential, like the yield curve spread, arrived at by self-interested, profit-maximizing traders).

Harvey concedes that "unemployment is low before every recession"—yes, *every* single one—but insists that this time it's "unusual." OK, but only because of Covid lockdowns and jobless subsidies—which also don't prevent a possible recession. In Harvey's own account, "excess labor demand" means that "the economy can absorb . . . negative growth." Huh? "Negative growth" is a silly term that means . . . *recession*. Harvey is saying *there won't be a recession* after the current yield curve inversion because today's economy, being mired in widespread voluntary joblessness, *can handle being in a recession*.

[5] Liz McCormick," "[Economist Says His Indicator That Predicted Eight U.S. Recessions Is Wrong This Year](),"*Bloomberg*, January 4, 2023.
[6] He does hedge, however, telling *Bloomberg*: "When you put all this together it suggests we could dodge the bullet. Avoiding the hard-landing— recession—and realizing slow growth or minor negative growth. If a recession arrives, it will be mild." So he allows a recession may occur – but at most a mere mild (short, shallow) one, which is at odds with the history showing that the deeper and longer is the curve inversion, the deeper and longer is the subsequent recession.
[7] See his January 5th summary on Linked-in (page 4) and his January 9th interview on CNBC.
[8] See "Jobs Before Recessions: Don't Be Fooled," *The Capitalist Advisor*, November 30, 2019; "U.S. Economic-Financial Performance Surrounding Recessions," *Investment Focus*, December 11, 2008.

2) "Tech layoffs." Harvey here cites a microeconomic factor (not just the labor market, but a *sub-sub* labor market) which has little to do with the macroeconomic phenomenon of recession. Oddly, tech is a *cyclical* sector, but Harvey sees no significance or relation of its layoffs to the larger business cycle. He also here offers a reason that's the logical *opposite* of his first reason, where he said *excess* demand for labor and *voluntary* joblessness can serve as buffers and prevent an economic downturn; here he says *deficient* demand for labor and *involuntary* joblessness will help. Harvey also believes that those fired from Twitter and Facebook are "highly skilled." We'd argue that they're highly political and slothful.

Campbell Harvey

Professor at Duke University, Partner, Research Affiliates, Advisor, Man Group

January 5, 2023

My yield-curve indicator has gone Code Red. It is 8 for 8 in forecasting recessions since 1968 —with no false alarms. I have reasons to believe, however, that it is flashing a false signal. My 1986 thesis shows that the yield curve (10yr Treasury yields–3mo bill yields) predicts real economic growth. In June 1989, the New York Times discussed my research for the 1968–1989 period: "All four of those inversions were followed by recessions." Over the next 32 years, the yield curve inverted another four times—and a recession followed each inversion. The yield curve has now inverted for a ninth time since 1968. Does it spell doom? I am not so sure. Here's why:

- **Labor excess demand**. Of course, unemployment is low before every recession, but it is unusual to have excess demand for labor. In this environment, laid-off workers can find work quickly. That is, the economy can better absorb slower or negative growth.
- **Tech layoffs**. Laid-off workers from FB, Twitter, and other tech firms are highly skilled and have very short duration of unemployment. Contrast this with the global financial crisis. Employees laid off by Lehman had no place to go. Likewise, in the COVID recession, when restaurant workers were laid-off, they had nowhere to go.
- **Consumers in a much stronger position**. Even if housing prices decline, the amount of equity to debt is much higher now than before the financial crisis. As a result, a drop in housing prices will unlikely result in contagion. Consumers' balance sheets are in much better shape than in the past.
- **Financial sector is healthy**. The global financial crisis started with the financial sector and the sector's problems spread, rapidly deepening the recession. It is unlikely that the financial sector would deepen a recession this time.
- **Model is about inflation-adjusted yields**. The published version of my thesis is called "The Real Term Structure…" Inflation expectations are also inverted (short-term inflation is much higher than long-term inflation). When yields are inflation adjusted, the curve is flat (suggesting lower growth, but not necessarily a recession).
- **The yield curve now impacts behavior**. Given the inverted yield curve is in the news, companies are unlikely to "bet the firm" on big projects. Consumers are being cautious and have plenty of savings. This situation leads to a self-fulfilling prophecy, i.e., lower growth. We can also view this as risk management. Even if growth slows, companies can make it through without large, painful layoffs, making a soft landing more likely.
- **The major wildcard is the Fed**, who was late in raising rates. The Fed cannot err twice by overshooting-i.e., continuing to increase rates well beyond when they should have stopped. I believe the time to end the tightening is now.

These circumstances raise the possibility of dodging the bullet. Ideally, we avoid the hard-landing recession and realize slow growth or minor negative growth. If a recession arrives, it will be mild.

3) "Consumers in a much stronger position." Harvey here cites another trailing variable. It's not a forecaster. Consumer confidence has almost always been at its highest before recessions (and inverted yield curves)—when joblessness is lower, incomes are higher, leverage is lower, and balance sheets are stronger. The economy is *output and supply-driven*, not demand-driven.[9]

4) "Financial Sector is Healthy." In fact, an inverted yield curve makes it difficult if not impossible for most financial institutions to *make a profit* by "borrowing short and lending long." The effect is also a lagged one. Financials initially become less profitable due to a narrowing of the net interest margin; then they lend less, then (as recession spreads) suffer loan losses. We've issued many reports over the years showing how recession is anticipated not just by inverted curves but by financial sector equities *underperforming* other predictive sectors (especially energy)[10]—as has been true recently.[11]

5) "The 'real' yield curve isn't inverted." Harvey says his yield curve model "is about inflation adjusted yields," and by that measure today's yield curve isn't "really" inverted. He means inflation will likely be *higher* over the *short* term (making the T-Bill rate *lower* in the *long* term—which means the T-Bill rate isn't "really" so high and the T-Bond yield isn't "really" so low—which means short-term rates aren't "really" above long-term rates-which means the yield curve isn't "really" inverted after all).[12] But this seems to be a specious argument.

Obviously, Harvey isn't subtracting the same inflation rate from nominal interest rates across the maturity spectrum, as that would simply lower the height of the *entire* curve, not make it less (or more) inverted. He's applying different inflation expectations to different yield maturities. The problem here isn't that market-based expectations are irrelevant, but that Harvey uses a dubious proxy for them—spreads between rates on nominal Treasury yields and those on inflation-adjusted Treasuries; the data for this are only two decades old and worse, they provide no estimates up to five years.[13]

Most past nominal yield curve inversions in the U.S. could as easily be dismissed in this way, yet Harvey seems not to have done so (until now). He notes that amid inverted nominal yields, "inflation expectations are also inverted," meaning "short-term inflation is higher than long-term inflation." But that's most *always* true; nearly *every* inverted U.S. curve since 1968 has been accompanied by higher near-term inflation compared to longer-term expectations; indeed, that's *why* the Fed raises rates (and inverts the curve)—allegedly to "fight inflation.[14]

The more basic principle is that inflation expectations are *already* embodied in the nominal yield curve. The Fisher Effect[15] says that inflation-deflation expectations, even when different at different time horizons, are *embodied* in nominal rates. A nominal interest rate is *the real rate plus an inflation premium* (or minus a deflation discount). The nominal yield curve itself *conveys* price-based inflation outlooks and needn't be adjusted for them.

6) "The yield curve now impacts behavior." Here Harvey expresses the standard view that a predictive variable will no longer work once people learn about it. If so, how is it possible that so many yield curve denialists existed before the "Great Recession" of 2007-09, despite the variable having had a perfect six-for-six forecasting record since 1968? Only now, after the variable is eight-for-eight (having rightly forecasted the recessions of 2007-09 and 2020), people will take the variable

[9] See "Business Investment, Not the Consumer, Drives the Business Cycle," *The Capitalist Advisor*, October 30, 2019; "Jobs Before Recessions: Don't Be Fooled," *The Capitalist Advisor*, November 30, 2019; "U.S. Economic-Financial Performance Surrounding Recessions," *Investment Focus*, December 11, 2008; "U.S. Consumer Confidence is High Again, So Watch Out Below," *The Capitalist Advisor*, September 8, 2017; "Consumer is Depressed–and That's Bullish," *Investment Focus*, November 6, 2002.
[10] See "Financial Stocks as Leading Indicators," *Investment Focus*, September 30, 2019; "How Much Longer Might Financials Trounce Utilities?" *Investor Alert*, December 6, 2012; "The Finance-Energy Gap as a Forecaster of Stocks," *Investment Focus*, June 7, 2011; "When the Financial Sector Falters," *Investor Alert*, August 6, 2007.
[11] Financials (XLF), energy (XLE), and the S&P 500 (SPY) were all rising in 2021, but by year-end Financials began to underperform Energy and the S&P 500 declined in 2022 (by 19%).
[12] *Bloomberg* summarizes his view thus: "The level of real yields also casts doubt on the recession signal. U.S. 10-year yields adjusted for inflation are likely well above corresponding three-month ones. While there are no three-month break-even rates, cross-referencing the latest annual CPI reading with one-year break-evens would return a negative real rate for the tenor, compared with 10-year real yields above 1.5%." A graph in the *Bloomberg* report purports to shows that when the bond-bill spread turned negative last October, the spread based on "real" yields was 400 basis points. Liz McCormick," "Economist Says His Indicator That Predicted Eight U.S. Recessions Is Wrong This Year," *Bloomberg*, January 4, 2023.
[13] See "5-Year Breakeven Inflation Rate," Federal Reserve Bank of St. Louis, 2003-present.
[14] See "Initially, Fed Rate Hikes Boost the Inflation Rate," *Investor Alert*, December 22, 2021 and "Inflation Expectations and Recessions," *Investor Alert*, August 14, 2022.
[15] See "Fisher Effect" (Science Direct).

seriously and somehow, suddenly take pre-emptive action to prevent recession? What action? Perhaps this is like Lucy and the football (in the Charles Schultz comic strip, *Peanuts*); surely the repeatedly fooled and humiliated Charlie Brown will learn—and alter his behavior; yet he kept believing Lucy's lies, kept trying the kick, and kept falling flat on his back—not unlike the way finance pros have long believed in Federal Reserve omniscience and pronouncements about crises being caused by "greed." as well as Fed claims that it'll "fight inflation" and, like a deft airline pilot, deliver a "soft landing."

Per Harvey, 1) yield curve denialists are dwindling in number, 2) the dwindling itself will preclude recession, and 3) points one and two justify Harvey himself finally becoming a denialist. It's an odd kind of logic, for he could just as well say the following: "Being so expert on the yield curve, and well known to investment pros, I now find good reasons to be a yield curve denialist, which will make others become so (again), which will again make recessions *possible*."

7) The Fed might raise rates further. Here Harvey says he may be wrong only because "the major wildcard is the Fed" because it "was late in raising rates." He believes, falsely, that Fed rate hikes lower inflation; on the contrary they raise the costs of doing business, no less than do higher energy prices. Per Harvey, "the Fed cannot err twice by overshooting—i.e., continuing to increase rates well beyond when they should have stopped. I believe the time to end the tightening is now." He says the Fed "cannot do this," but in fact it is doing it (Figure Two), so perhaps he's only saying it shouldn't do it. But if so, that's just policy advice—*normative* economics, not *positive* economics.

Fed researchers and officials *know* that inverted yield curves trigger recessions—and the Fed doesn't care one whit, if it feels the need to cause one.[16] The Fed's not going to listen to recession warnings from yield curve experts. Instead of hoping the Fed acts well, we need only consult what it is doing and predict what it will do. We know it has inverted the yield curve already; we have good reason to expect it'll keep doing so for most of this year; it will thereby trigger another recession.

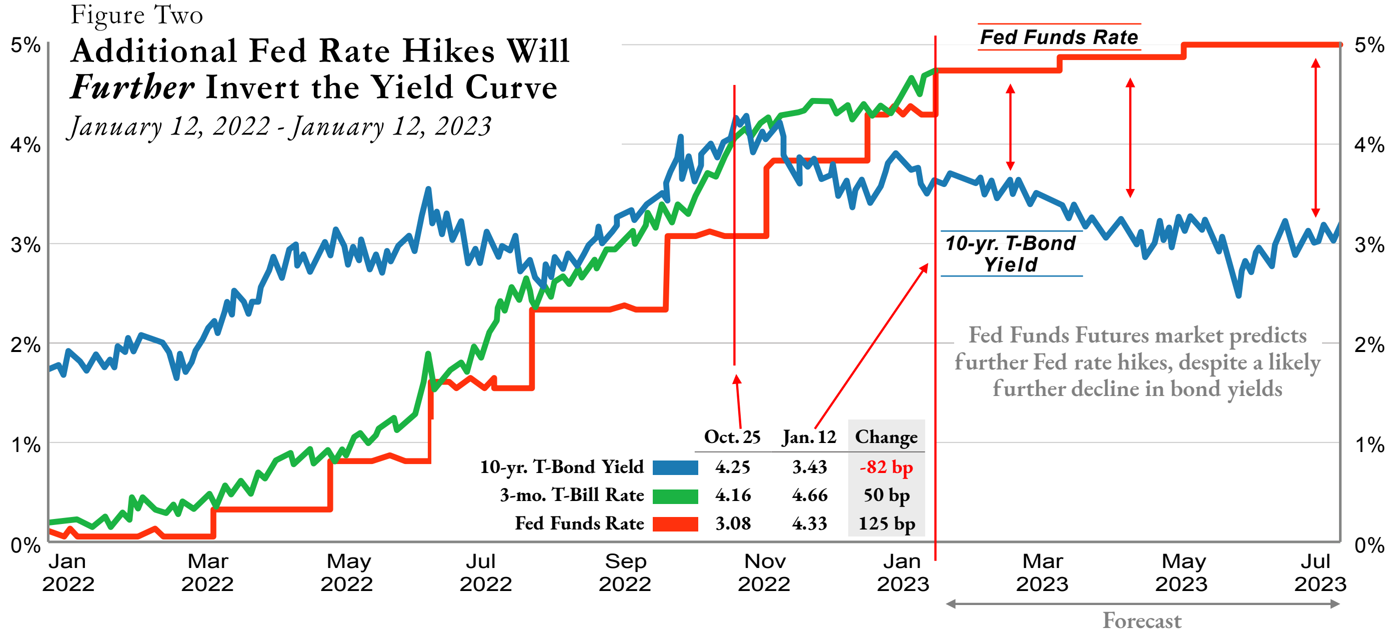
Oddly, Harvey is dismissing the *existing* inversion of the yield curve—both its *magnitude* (now nearly -125 basis points) and its *duration* (now lasting nearly three months)—on the grounds that *it's not yet as inverted as* it *could* be. Well yes, things (including Fed policy) certainly *could* get worse from here on out, but *we've already got an inversion*, and history is very clear that a recession will follow (probably starting in late 2023 or early 2024).

The proper question is not, per Harvey, *whether* or not there'll be a recession, but *how deep* it'll be, *how long* it'll last, and what sectors will be worst hit. IFI is *not* a yield curve denialist.

Figure Two

Additional Fed Rate Hikes Will *Further* Invert the Yield Curve

January 12, 2022 - January 12, 2023



[16] See "The Fed Wants Another Recession," *Investor Alert*, August 21, 2022 and "Powell Promises Pain," *Investor Alert*, August 28, 2022.

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Richard Salsman is founder, president and chief market strategist. Prior to IFI he was senior economist at H.C. Wainwright Economics, Inc. (1993-1999) and from 1981 to 1992 a banker and capital markets specialist at the Bank of New York and Citibank. He is an expert in market history, economics, forecasting, and investment strategy. Dr. Salsman's work has appeared in *The Wall Street Journal*, *Investor's Business Daily*, *Barron's*, *Forbes*, *National Post* (Canada) and *The Economist*. In addition, he has authored four books—*Gold and Liberty* (1995), *Breaking the Banks: Central Banking Problems and Free Banking Solutions* (1990), *The Political Economy of Public Debt: Three Centuries of Theory and Evidence* (2017) and *Where Have All the Capitalists Gone?* (2021)—plus many chapters in edited books. He speaks regularly at conferences, investment gatherings and universities. He earned his B.A. in Law and Economics from Bowdoin College (1981), his M.B.A. in Economics from the Stern School of Business at NYU (1988), and his Ph.D. from Duke University in Political Economy (2012). In 1993 he earned the designation of Chartered Financial Analyst (CFA) from the Association for Investment Management and Research.

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