

# How Accurate are Capital Market Assumptions, and How Should We Use Them?

August 2022

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## Summary

- Capital market assumptions (CMAs) are almost universally used in the institutional investment world in the strategic investment policy setting process, but their forecasting accuracy is rarely assessed
- Ten years of history of a broad survey of CMAs allows us to examine the industry's success in forecasting future returns
- Industry consensus CMAs from ten years ago were off the mark for all of fifteen major asset classes, with the actual ten-year returns out of the industry range from most pessimistic to most optimistic for 14 of the 15 markets.
- Industry consensus CMAs have predicted relatively stable return premiums (stocks over bonds, non-US over US) when actual 10-year return premiums have been volatile and cyclical.
- CMAs for “active” asset classes like private equity and hedge funds will not be a good guide to future returns, due to high active manager dispersion and the lack of an investable “market”.
- Some suggested keys to success with capital market assumptions include:
  - De-emphasize CMAs in the asset allocation process, in favor of starting with the market portfolio and then adjusting based on any (mostly qualitative) strong views and your circumstances and objectives
  - Focus on the unique characteristics of your fund relative to others, as much as on market expectations
  - Be aware of how the CMAs you use compare with industry averages. Where they are different, give consideration to why.
  - Use CMAs to assess a variety of economic and market regimes and stress test
  - Be cognizant of time horizon; avoid setting policy frequently using long-term assumptions, which is demonstrably suboptimal
  - Learn to love the CMAs; reality is that fund overseers need something, and imperfect forecasts are the best we have

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## How Accurate are Capital Market Assumptions, and How Should We Use Them?

Capital market assumptions (CMAs)—estimates of investment returns and risks for various asset classes over a future medium-to-long term period, such as 10 years—are an integral part of institutional investment decision-making. Leading investment managers and consultants produce them, and asset owners almost universally use them, in setting and reviewing their total fund investment strategy.

CMAs have a large influence on how trillions of dollars in assets are invested, but how good of an estimate of future returns have they actually been?

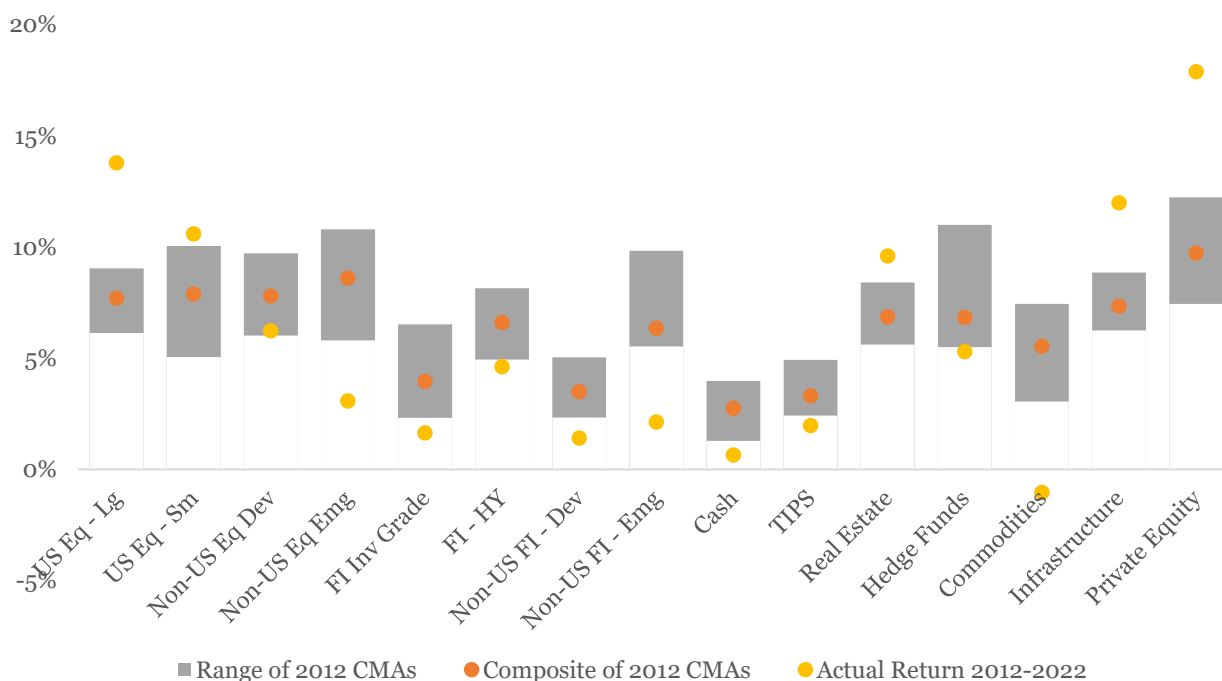
The annual Horizon Actuarial Survey of Capital Market Assumptions has become the pre-eminent source of aggregated information on the industry's CMAs. Past surveys are published online going back ten years (2012 through 2021, with the 2022 edition likely out shortly), giving us an opportunity to begin assessing the industry's performance in estimating long-term future returns.

### Assessing the long-term record

The 2012 survey presented data from 17 respondents, representing leading consulting and investment management firms.<sup>i</sup> Among other data, the survey presented composite CMAs across all respondents and minimums and maximums (most pessimistic to most optimistic expectations by asset class.) This analysis combines assumptions designated by the respondents as shorter- or longer-term, but the same conclusions also hold if these are examined separately. Exhibit 1 shows the results by asset class.<sup>ii</sup>

#### Exhibit 1

#### 2012 Industry Capital Market Assumptions and Subsequent 10-Year Returns



Source: Horizon Actuarial Services, LLC, index data providers (see endnotes)

The CMAs used ten years ago in setting investment policy did not do well in forecasting subsequent 10-year returns. **In no case was the composite CMA a very good guide to the future return. And for all but one asset class (developed non-US equity), actual returns were out of the min/max range of all providers' assumptions—either higher than that of the most optimistic provider, or lower than that of the most pessimistic provider.**

The differences between CMA and actual returns are meaningful. The difference in risk/return optimal allocations for a simple portfolio between CMA and actual returns would have been 60 percentage points of equity (40/60 stocks/bonds vs. 100/0).<sup>iii</sup>

(It is likely that actual and benchmark returns at the total fund level would have been closer to the CMAs, as some asset class level differences would have offset one another to a degree.)

This occurred in a period that, while there were times of significant volatility including 2022 so far, did not include a market catastrophe such as the Great Depression, the 1973-74 market crash, or the Global Financial Crisis, which would reasonably be expected to throw off the accuracy of any set of CMAs.

Investment managers and consultants put significant effort, resources and intellectual capital into the production of CMAs. No doubt each firm has enhanced its methodology over time, at a minimum adapting to changing market environments. And the survey itself has expanded over time with more respondents (now 39), giving an even broader and more inclusive representation of the industry's views.

**But the results indicate caution in employing CMAs for some purposes for which they are commonly used, such as:**

- **Optimizing allocations across asset classes, especially across asset classes that are substitutes and have broadly similar risk and return characteristics**
- **Comparing total fund expected returns to target returns (actuarial assumed rates of return, inflation + spending, etc.)**

#### **Stability of return premiums**

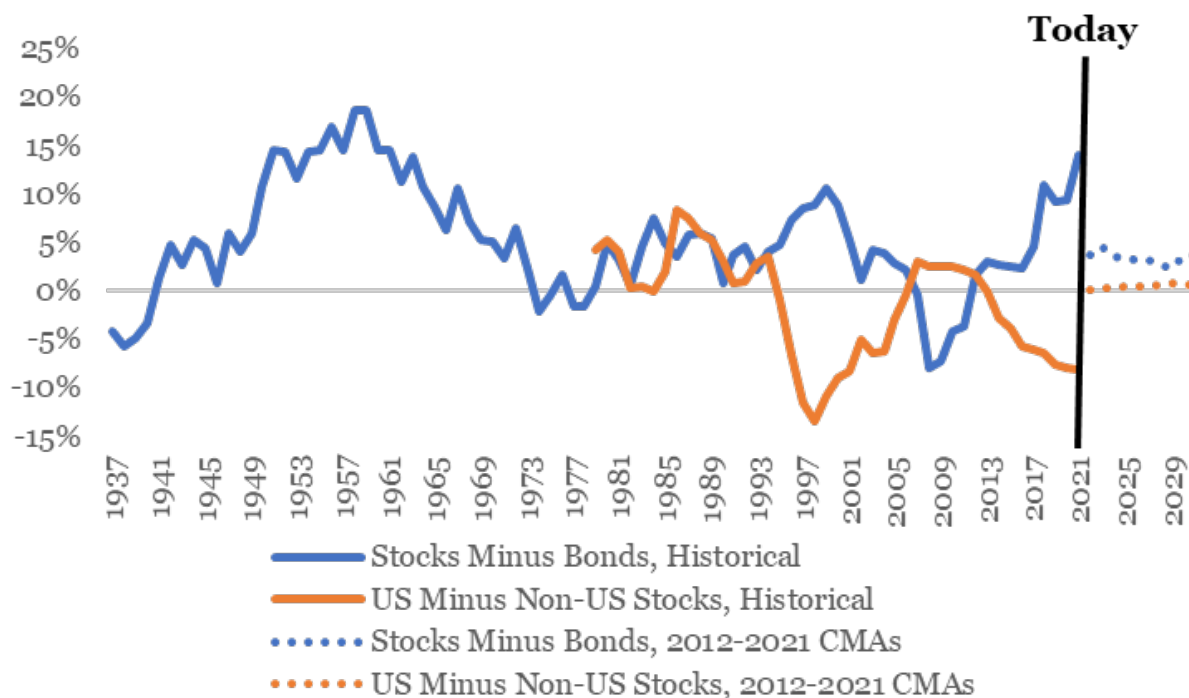
CMAs tend to describe a return environment that is more stable than what occurs in reality. Exhibit 2 shows rolling 10-year return premiums (solid lines) for large-cap U.S. stocks over investment-grade U.S. bonds, and developed market non-U.S. stocks over large cap U.S. stocks, up until the present time (marked by the vertical line).

Subsequently, the 10-year future return periods corresponding to past industry composite CMAs are shown (dotted lines). For example, the first dot is the 2012-2022 period forecasted by 2012 CMAs, the second is the 2013-2023 period for 2013 CMAs, up until the most recent CMAs that will play out over 2021-2031.

As you can see, the last ten years of industry composite CMAs have painted a more stable picture than has historically been the case for rolling ten-year periods in the past. The historical premium of stocks over bonds has varied widely, though positive the great majority of the time. The premium of non-US over US stocks has oscillated even more, and was negative about half of the time.

## Exhibit 2

### Rolling 10-Year Historical and Projected (CMA) Return Premiums



Source: Horizon Actuarial Services, LLC, Standard and Poor's, Morgan Stanley Capital International

Conversely, CMAs have, on average, been pretty stable in important ways over time. The composite expected premium of large-cap stocks over core bonds was 3.75% in 2012 and 3.69% in 2021. The expected premium of developed non-US over US stocks, another important measure, has been in a tight range of positive values over the last ten years.

Stocks have outperformed bonds reliably over fairly long periods—85% of 10-year periods since the 1920s, only falling short in the Great Depression, 1973-74, and the Global Financial Crisis. So, the relatively stable positive risk premium the industry tends to envision could hold reasonably true over the next 10 years, if we avoid a catastrophe.

But most periods may feature bigger oscillations in equity return premiums than industry CMAs are likely to anticipate. And **for decisions between other risky assets, such as U.S. vs. non-U.S. stocks, the instability and cyclical nature of actual return premiums means that your results will be highly dependent on the coming economic regime, and a stable expected risk premium is unlikely to be a good guide.**

### Implementation strategy and the usefulness of CMAs

When thinking about the how best to use CMAs, it is useful to make a distinction between what we might call *market* and *active* asset classes.

Market asset classes include public equities and fixed income (at least investment-grade), arguably commodities and listed real estate. Their key defining characteristic is that they can be invested passively (index funds), and they have these qualities:

- The allocation and implementation decisions are separable – one can invest passively, or very actively, with a few managers or many, etc.

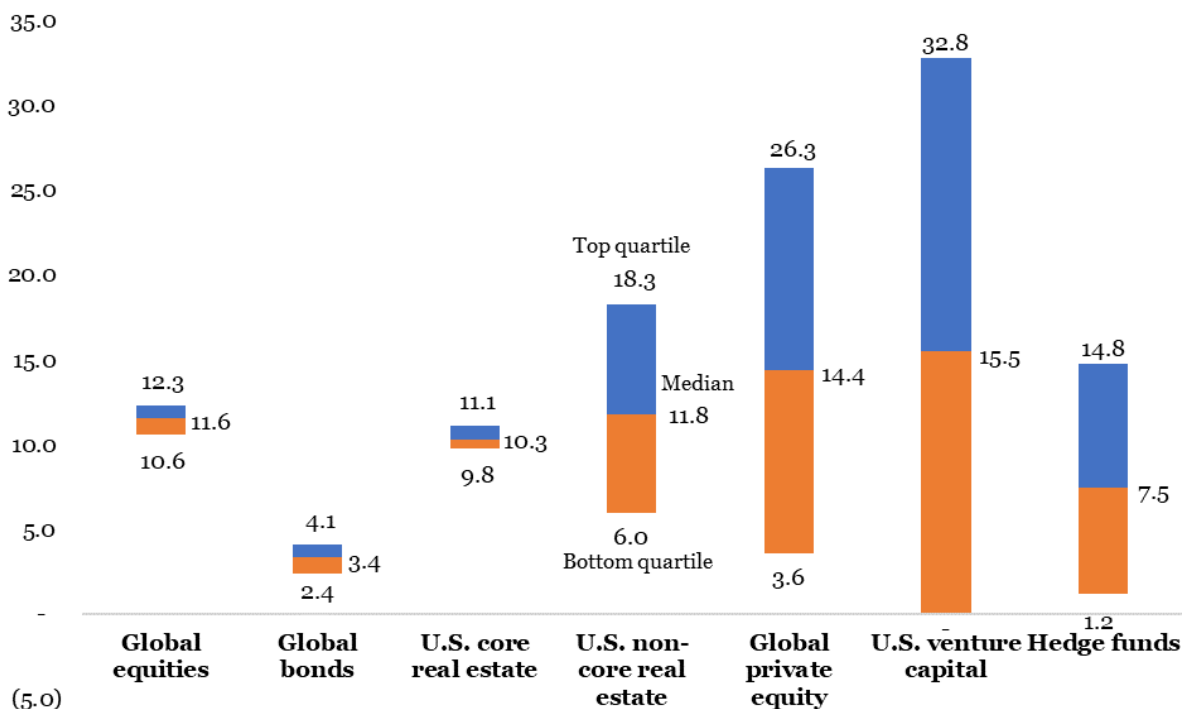
- Their risk and return drivers (growth, rates, etc.) are well understood, even if their levels are unknown in advance
- There is a well-defined market with a return that can be reliably and (almost) equally earned by everyone (through index funds)
- Even if active management is used, the dispersion in likely returns from the benchmark (and therefore the CMA, if it turns out to be “right”), will probably be pretty low for diversified portfolios

*Active* asset classes include private equity and credit, hedge funds, private real estate, and other alternative and/or illiquid assets. They generally must be accessed through active managers, and have these qualities:

- The implementation decision cannot be fully separated from the allocation decision
- Their return drivers (manager skill, for example) are complex and hard to assess
- There is no “market” for which you can earn the return—your results will depend on your selection and manager skill. You can (and probably do) assume an “industry average alpha” and/or illiquidity premium in your CMAs, but that’s not what you will actually get.
- Dispersion of potential returns from the benchmark (and thus potentially the CMA, if it turns out to be “right”), will be high

Exhibit 3 shows historical dispersion in 10-year manager results by asset class. The difference between *market* and *active* asset classes is striking. **A CMA representing a future market return for an active asset class, with dispersion in results this wide, is unlikely to be a good guide to your actual results.** This relates to manager-level dispersion, but dispersion in diversified asset class returns is also significantly wider for active asset classes.

**Exhibit 3**  
**Dispersion of Manager Results by Asset Class**



Source: Rowland [2022] (J.P. Morgan). See endnotes for disclosures.<sup>iv</sup>

Allocation decisions for active asset classes should be made as implementation decisions: e.g., how much of my overall equity allocation should be private, illiquid, and highly dependent on active risk, given my manager selection skill or access to same, confidence in active management, fee budget, and overall competitive advantage relative to other allocators?

Making allocation decisions on the basis of CMAs that won't give a reliable guide to actual implemented returns even if they turn out to be "right", which they were not over the past decade, is likely to lead to suboptimal results.

### **CMAs: what are they good for?**

None of the preceding is meant to denigrate the process of creating capital market assumptions, which are demanded and used by institutional investors worldwide. As mentioned, firms bring enormous intellectual capital and resources together to build, and convey to investors, highly sophisticated and reasonable views on a wide variety of complex asset classes.

The problem is that predictions, especially about the future, are difficult.<sup>v</sup> Some providers of CMAs have gamely conducted reviews of the predictive power of their own assumptions, found results similar to what is presented here for the industry composite, and reminded the reader that they are meant to describe a range of possible outcomes, not just a point estimate.

That is true, but many institutional uses of CMAs are on potentially shaky ground if the return estimates themselves aren't a good guide to the future. How does my portfolio's expected return compare with my assumed rate of return? Can I expect to grow assets after inflation and spending with this investment policy? What if I add more alternative investments in this low-expected-return environment? Will my overall risk level enable me to meet my goals?

Here are a few closing thoughts on the best use of capital market assumptions:

- **De-emphasize them in your asset allocation setting process**, in favor of starting with a market or even peer portfolio.<sup>vi</sup> Vary from it based on a (mostly qualitative) assessment of where your or your advisors' views differ significantly from the markets, and your specific circumstances—especially your ability to succeed long-term with active management.
- CMAs are useful as part of a tool to help **analytically assess if there is something unique about your portfolio** that dictates that you be different from others in investment policy. Your circumstances and objectives might lead you to a different tradeoff between risk and return than peer institutions, and forward-looking projections of funded status, spending, and other relevant financial variables might help—and you need CMAs for that.
- CMAs are a key part of an analytical approach to **assess various economic and market regimes** and how your portfolio might react, with more emphasis on range of possible returns than central tendency. Use CMAs to help stress test your strategy.
- **Be cognizant (when many funds aren't) of the potential mismatch in time horizons** between your CMAs and your investment decision-making horizon. Reviewing your asset allocation every 1-5 years based on 10- to 30-year projections [can be shown](#) to be suboptimal even with perfect foresight.
- Lastly, CMAs are used almost universally among institutional investors for a reason. Put bluntly, you need something, and they are something—well-reasoned, analytically rigorous assumptions about uncertain future market movements. The reality is that managing a large organization or asset, either within or outside the institutional investment world, requires anticipating the future, even with less-than-perfect information.

## References

Cambridge Associates, [U.S. Private Equity Index and Selected Benchmark Statistics](#)

Global Infrastructure Hub, [Infrastructure Monitor 2021](#)

Horizon Actuarial Services, LLC [Survey of Capital Market Assumptions](#) (2012 through 2021 editions)

Rowland, Kristin Kallergis, J.P. Morgan, [Private Markets: 4 steps to help you optimize your allocation to alternatives](#), 2022

Sebastian, Mike, [Are You Matching Your Investment Time Horizons? Most Funds Don't](#), 2022

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<sup>i</sup> Respondents to the 2012 survey were reported as: Callan Associates, CAPTRUST Financial Advisors, A.J. Gallagher / Independent Fiduciary Services, Hewitt EnnisKnupp, Investment Performance Services, LLC, R.V. Kuhns & Associates, Marco Consulting Group, Marquette Associates, Meketa Investment Group, J.P. Morgan, Morgan Stanley / Graystone Consulting, New England Pension Consultants, Pension Consulting Alliance, The PFM Group, SEI, Towers Watson, and Wurts & Associates.

<sup>ii</sup> Market indexes used were S&P 500, Russell 2000, Spliced Developed Ex-US Index, Spliced Emerging Markets Index, Bloomberg US Aggregate Float-Adjusted Index, High Yield Corporate Composite Index, S&P Global Developed Sovereign Bond Index, JP Morgan EMBI Global Diversified, S&P U.S. Treasury Bill 0-3 Month Index, Bloomberg US Treasury Inflation Protected Index, NCREIF Property Index through 1Q22, Barclay Hedge Fund Index, Bloomberg Commodity Index TR, EDHEC Infra (through September 2021, Cambridge Associates LLC US Private Equity Index through 3/31/22. Index performance through 7/31/22 unless otherwise noted.

<sup>iii</sup> Based on an optimization (maximize Sharpe ratio) including large-cap U.S. equity and core bonds, using 2012 CMAs and subsequent 10-year actual returns.

<sup>iv</sup> Data sources: Lipper, NCREIF, Cambridge Associates, HFRI, J.P. Morgan Asset Management. Global equities (large cap) and global bonds dispersion are based on the world large stock and world bond categories, respectively. Manager dispersion is based on the annual returns for global equities, global bonds, U.S. core real estate and hedge fund returns over a 10 year period ending 4Q 2021. U.S. non-core real estate, global private equity and U.S. venture capital are represented by the 10-year horizon internal rate of return (IRR) ending 3Q 2021. Past performance is not indicative of future results. Data is based on availability as of February 28, 2022.

<sup>v</sup> The source of this quote, traditionally attributed to Yogi Berra, seems to be uncertain.

<sup>vi</sup> There are several good potential sources for data on the world market portfolio, such as [Aon](#), [State Street](#), and academics [Doeswijk, Lam, and Swinkels](#).