

# Investment Beliefs

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Why Do We Need Investment Beliefs?	1	What Do We Believe?	3
How Do We Know What We Know?	2	Investment Beliefs and Strategy	4
What Do We Know?	3	Summary	4
What Don't We Know?	3	References	5

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*Abstract:* Investment beliefs comprise all that we know or think we know about the ways in which asset returns are generated. We discuss the epistemological reasons why there is little we know with a high degree of confidence in the field of finance. As a result, in order to make investment decisions, we have to rely on beliefs. By their very nature, investment beliefs cannot be proven but have varying degrees of theoretical and empirical support. They are implicit in virtually every investment decision, but it is uncommon for them to be made explicit. We discuss the importance that governing and managing fiduciaries develop a shared and living set of investment beliefs that guide strategy development and investment decision making throughout their organizations.

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An *investment belief* is a *theory* relating to the return-generating processes of assets; the degree of logical justification and empirical evidence supporting the theory allows us to gauge how much confidence we ought to place in it. Beliefs need to be updated as new theories are developed and as the range of empirical evidence expands and must remain subject to ongoing critical debate within the investment organization. This is especially true of the beliefs underlying active strategies, the success of which can sew the seeds of their demise (e.g., the small-cap or earnings revision effects in U.S. stocks).

Investment beliefs are not a recitation of stylized facts regarding past investment returns, nor naive extrapolations of the past (e.g., equity markets have delivered positive real returns in the past and therefore will do so in the future). Nor are they theories that appear to be supported by observation but lack economic justification; for example, the U.S. equity market is likely to go up in years in which a team from the original National Football Conference wins the Super Bowl). While the “Super Bowl theory” may appear to have empirical support, the only true economic

justification is a belief in a positive equity risk premium (hint: the majority of National Football League teams are from the original National Football Conference).

After a brief discussion of why we believe investment organizations need investment beliefs, we discuss the epistemological challenges faced by the field of finance as compared to other sciences. With this backdrop, we show that there is little in the field of finance that we do know or can know with a high degree of certainty. In order to illustrate their use, we provide some sample beliefs and discuss their implications. We then discuss the linkage between investment beliefs and their role in the development of *investment strategy*. In this context, investment beliefs are a *governance* matter. They should be developed and shared by governing and managing fiduciaries in the same way as are other aspects of strategy.

## WHY DO WE NEED INVESTMENT BELIEFS?

Any investment strategy is the logical consequence of an underlying investment belief or combination of beliefs. One may think of them as being akin to the axioms that

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The author benefited greatly from comments by John Campbell and Jack Gray.

form the basis for a mathematical theory. Being explicit about the underlying beliefs allows one to assess whether the foundations of the strategy are solid and consistent with other strategies.

Sometimes a breakdown in logic yields implications that do not logically follow from otherwise reasonable beliefs. An oft-heard example is that a positive equity risk premium implies that equities must outperform Treasury bills over a sufficiently long investment horizon. This logic incorrectly assumes that cumulative, rather than annualized, risk declines with investment horizon. In addition, the fact that some equity markets have lost 100% of their value provides a simple empirical counter-example.

As will be discussed subsequently, we have to rely on beliefs because there is little that can be proven conclusively in the field of finance. Investment beliefs are important, as they form a critical input to the development of investment strategy. In this light, having explicit, shared investment beliefs between and among governing and managing fiduciaries is a matter of good governance.

## HOW DO WE KNOW WHAT WE KNOW?

Modern finance follows in the long tradition of the scientific method, which holds that nothing can be proven with absolute certainty. All theories are tentative, simply waiting to be disproven or, in the words of Popper (1963), “falsified.” The scientific method seeks to falsify because falsity is the only thing of which we can be certain. Mounting empirical support provides us with additional confidence that a theory holds, but only one counterexample is required to demonstrate that it does not. Taleb (2001) describes what he refers to as the black swan problem. Observing thousands of swans, all of which are white, does not prove that all swans are white, whereas the observation of a single black swan proves the statement false. We gain even greater confidence if a theory is able to extrapolate beyond the range of past observations. A celebrated example from the physical sciences was the ability of Einstein’s general theory of relativity to predict correctly the degree of gravitational bending of light as it passes by a large mass. In this case the theory was a half century ahead of scientists’ ability to test the theory, but when it was experimentally verified in the early 1960s, our belief in the predictive power of the theory increased significantly. In empirical finance, it is unlikely that additional empirical evidence will completely disprove a theory. It is more likely that evidence will add incrementally to or subtract from our confidence in a theory, that is, that it will provide some measure of statistical significance.

Another underpinning of the scientific method is that a theory must be testable. A theory that cannot be disproved is simply conjecture. Again, using the language of Popper (1963), many theories in finance are conjectures, including the famed efficient markets hypothesis, for reasons that will be discussed subsequently (a hypothesis must be testable).

We gain confidence in theories based on their ability to describe past events or phenomena, but also on their ability to predict future events. We are unlikely to gain the same degree of confidence in financial theories as we do with theories in the physical sciences for several reasons:

- Finance is a relatively young discipline.
- Expected return/risk ratio (i.e., the signal to noise ratio) is very low.
- Data are limited, often biased, and cannot simply be created.

We discuss each of these in turn.

While mankind has for millennia intuitively managed risk through diversification (Bernstein, 1998), modern finance is a relatively youthful half century old. The theories of finance have not been road-tested with the passage of time or matured as have some other disciplines, many of which have been in development for several hundred years or more. In addition, we are presently heading into a period of human history that, in economic terms, is unique—an approximate doubling of the proportion of the world’s population over the age of 60 over the next 50 years and tripling over the next 100 years across all regions of the developed and developing world (according to UN demographic projections). This will test the power of existing economic and financial theories to extrapolate.

Financial data (e.g., time series of returns) are very “noisy.” An equivalent statement is that the predictive power of models is generally low, especially in regard to forecasting future returns. As a result, it is generally difficult to draw strong inferences. In addition, financial data do not appear to be constrained by the physical laws of nature (e.g., conservation of energy). Second moments, of which kinetic energy is an example, are finite in the physical world but need not be finite in the financial world. As a result, great care must be exercised in transporting mathematical tools from other disciplines; the unique properties of financial data have necessitated the development of the field of econometrics.

One way of gaining confidence in a hypothesis when confronted with noise is to use more data. Unfortunately, we are limited here also. A side effect of the relative youthfulness of the discipline is that long, high-quality data histories are hard to come by. This may sound like an odd statement given the terabytes of financial data that exist. Since finance is a nonexperimental science, researchers cannot perform repeated experiments to generate more genuine data (as opposed to simulated data) with which to test a hypothesis, as they can in the physical sciences. There is, however, the possibility of repeated experiments in the area of microeconomics (Smith, 1994). In general, though, we have one sample. Even though a theory may have been tested “out-of-sample,” the mere fact that the researcher has read other papers on related topics using similar data in order to even decide to test a hypothesis implies a degree of “in-sampleness.” The only true out-of-sample tests occur as the future unfolds. Another issue is data quality. There are well-documented biases in financial data—the easy data bias (collecting financial data following a major calamity such as a war), survivor bias (well documented in the case of active management

but also true, and perhaps more important for long-term investors, for asset classes), and inclusion or success bias (back-filling emerging market or active manager indexes following periods of good performance).

## WHAT DO WE KNOW?

Of the following three categories: what we know, what we believe, and what we don't know, the second category (what we believe) is by far the largest and is presented and debated within the vast body of academic literature in the field of empirical finance. We will not provide a comprehensive survey of the literature here, but instead will highlight some of the areas most relevant to managing a pension fund or endowment.

At the risk of being pedantic, the first thing we know with relative certainty is that we know little with absolute certainty.

What we can also say is that every investor has a net liability-mimicking portfolio, defined as the portfolio of financial assets or contracts that minimizes some measure of risk to net wealth, including future cash inflows and outflows (e.g., surplus or balance-sheet risk for a pension fund). For an individual, this includes future income and expense streams, both discounted using appropriate stochastic discount factors. For a fully funded pension plan, the net liability-mimicking portfolio is simply a proxy for the liabilities. In general, the net liability-mimicking portfolio will depend on the nature and sensitivities of future cash inflow and outflows, the investment opportunity set, and on the particular investor's definition of risk.

Most of the literature in finance assumes, either implicitly or explicitly, that an investor's net liability-mimicking portfolio is a short-duration, default-free instrument (i.e., U.S. Treasury bills) with no residual (i.e., unhedgable) risk. This implies that asset-only measures of risk (e.g., asset return volatility) are appropriate. The net liability-mimicking portfolio of a pension fund with nominal (inflation-linked) liabilities, however, behaves more like a long-duration nominal (inflation-linked) government bond with some residual risk due to actuarial uncertainties (e.g., wage growth).

Another uncontroversial statement is that over long enough horizons, investors in risky assets expect to earn a higher return for assuming risk. Were this not the case, the foundation of the entire capitalist system would be in peril. Note that this is not the same thing as believing that over a sufficiently long horizon an investor will be guaranteed to earn a positive return for holding risky assets.

## WHAT DON'T WE KNOW?

Unfortunately, there are many things we do not know. This category can be further subdivided into things that we can never know (for epistemological reasons) and things that we are unlikely to ever know (primarily due to the low signal-to-noise ratio).

In the category of things that we will never know (unfortunately) is the degree to which markets are efficient. This is a consequence of the fact that any test of market efficiency is a joint test of an asset-pricing model and market efficiency. If the data expose return irregularities, it may be that the asset-pricing model is misspecified.

The limited data combined with a low signal-to-noise ratio are major impediments to achieving a high degree of confidence in investment-related theories or hypotheses. For example, it takes approximately 61 years of data to determine statistically (at the 2.5% level) if the equity risk premium is positive or an active manager has skill, assuming a Sharpe ratio or information ratio of 0.25, respectively, and stationarity. Over this period of time, the world or active manager's investment people or processes would likely have changed materially.

## WHAT DO WE BELIEVE?

Below, we present a sample set of investment beliefs that would be applicable to a long-horizon investor such as a pension or endowment fund that has a cautious belief in the value of active management. It is not intended to be an exhaustive list.

1. Overall market direction exhibits some predictability in the long term, but is very nearly random in the short term.
2. Markets are very efficient at pricing securities relative to one another, but are not perfectly efficient due to imperfect availability and transmission of information and to execution costs.
3. Investment costs are more predictable than investment risks and these risks are more predictable than returns.
4. The average returns of illiquid assets (including private equity and real estate) are highly correlated to the comparable, passive public market alternative over a sufficiently long horizon.
5. Responsible corporate behavior with respect to environmental, social and governance factors can generally have a positive influence on long-term financial performance.

The first belief suggests that consistently timing the market over short time horizons is extremely difficult but that over longer horizons risk premia vary with some predictability. Such a belief would limit the amount of active risk allocated to tactical asset allocation strategies (e.g., stock-bond cash timing) and, instead, would focus on a dynamic long-horizon asset allocation process.

The second belief places a limit on the degree to which markets can be efficient by recognizing that there are costs involved in collecting and analyzing information and executing the relevant trades in order for a security price to reflect all available information. In other words, active security selection is difficult. Ambachtsheer (2004) expresses a similar sentiment by stating that "short horizon processes focus on predicting and exploiting temporary securities pricing discrepancies, and are zero-sum games before expenses."

The third belief deals with the relative forecastability of returns, risks, and costs and should inform how the organization focuses its investment management efforts. Costs are a first-order issue in an active management context. Eliminating cost is equivalent to adding value or “alpha.” Slager and Koedijk (2006) surveyed the investment beliefs of 16 of the world’s largest asset managers and found that only one, Vanguard, articulated a strong belief in the importance of cost minimization.

The fourth belief expresses a view on the return-generating processes of illiquid assets relative to their more liquid comparables (e.g., same size, sector, region, etc.)—namely, that if we could observe their returns with greater frequency, then we would observe similar returns (adjusted for risk or leverage) with the addition of an active or idiosyncratic return. This belief could be used to define success for a private equity program as being one that outperformed the comparable, passive public market averages, adjusted for risk.

The last belief is in the area of responsible investing. Corporate disclosure regarding such governance factors has not been standardized to the same degree as the reporting of more traditional financial information. As a result, empirical research on their influence on returns generally does not reach the same degree of confidence as the more traditional factors (e.g., value, momentum).

## INVESTMENT BELIEFS AND STRATEGY

In a general sense, strategy is about competition – where, how, and when to compete. An investment organization’s objective can be generally expressed as the maximization of an appropriately defined return-risk trade-off (e.g. asset-only, surplus, active) by competing in capital markets. The goal of strategy development, then, is to decide where, how, and when to build capabilities and the supporting infrastructure that is aligned with the organization’s investment beliefs. We call this the *ideal strategy*. Note that building capabilities applies to the building of internal investment capabilities as well as capabilities to execute using external partners or service providers.

The ideal strategy is dependent on the current and future institutional characteristics, which comprise elements such as organizational capabilities, fund size, the size of cash inflow and outflows, the nature of the liabilities, constraints and risk tolerance. In broad terms, the magnitude and nature of cash in- and outflows form the basis for determining the net liability–mimicking portfolio and the residual risk that cannot be hedged effectively.

Constraints often play a significant role in defining the ideal strategy. As constraints cannot increase portfolio efficiency, it is important to understand where they arise—legal or regulatory, governance, self-imposed, industry product constraints—and their cost. Some constraints, such as those due to poor operations or inadequate intellectual capital, may be inadvertent in that you “don’t know what you don’t know.” Risk tolerance, or even more fundamentally how risk is defined, is also a critical input to defining the ideal strategy.

If two organizations share broadly similar investment beliefs, the differences in their strategies should be explainable by either differences in institutional characteristics or misalignment between the ideal and actual strategies. Many institutions have strategies that are not aligned with their institutional characteristics and investment beliefs. This is evidenced by strategy “herding,” whereby organizations adopt strategies that are similar to their peers, even though they have very different institutional characteristics, in order to avoid maverick risk.

A case where identical beliefs should lead to a different ideal investment strategy is deciding how much active risk to take. Institutions with identical beliefs regarding market efficiency will likely arrive at different answers given differences in their fund sizes. As a consequence of higher trading turnover, active strategies are inherently less scalable to very large size due to trading costs. All else being equal, including identical risk preferences and a belief in active management, the ideal amount of active risk for a large fund will be lower than for a small fund. Ibbotson (2000) accurately describes the paper by Brinson, Hood, and Beebower (1986) on the determinants of portfolio performance as one of the most widely misquoted papers in finance. While this is likely the case, the paper’s main result was that asset allocation, on average, accounts for 90% of the variability of a pension fund’s returns through time, and this conclusion is often treated as a fact that will always be the case rather than the result of the beliefs of those managing a fund. Clearly, if one does not believe that active management can add value, then adopting an indexed portfolio will result in 100% of the variability of returns being attributed to asset allocation. Conversely, if one believes that active management can add value and that the risk premia of all asset classes are zero, then a portfolio of market-neutral active strategies would result in 0% of the variability of returns attributed to asset allocation.

## SUMMARY

This chapter outlines our beliefs on the topic of investment beliefs.

There is very little we know in the field of finance with anywhere near the degree of certainty that we do in other, more established fields or disciplines, as in the physical sciences for example. While this thought is somewhat discouraging, we still find ourselves in the position of having to make important investment decisions. Investment beliefs provide a foundation for investment strategies and are important in the design, construction and management of an investment portfolio. They provide a framework for considering questions and making informed decisions in a holistic and consistent manner.

Investment beliefs are important from a governance perspective in that they form the basis for the development of investment strategy. They ought to be made explicit, documented, understood, and firmly held by governing and managing fiduciaries and investment professionals. Without this shared understanding, the daily decisions made by investment professionals throughout an organization likely imply an incoherent set of investment beliefs.

Finally, investment beliefs must be developed and continuously updated by each investment organization through a process of ongoing, informed, and critical debate. This will promote confidently held beliefs that can be put into action across the organization.

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