

# Rethinking Investment Beliefs in a Time of Crisis: The Calming Hand of Philosophy

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*Three insights from philosophy are helpful in this time of financial and economic crisis. First, philosophy is designed to inspire a state of calm, meditative reflection. Second, only during crises are personal, political, and investment beliefs seriously tested. Third, philosophical beliefs underpin much of the debate about the crisis and its solutions. These are, in turn, underpinned by personal beliefs about society, politics, ethics, and human behaviour. Exposing some of these hidden paradigms gives investors an opportunity to test, adapt or even abandon their investment beliefs. All of this supports the Tao-like challenge that to be useful, investment beliefs must be flexible and firmly held at the same time.*

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## Questions of Philosophy

Philosophy is the art of formulating the right questions, in the right way. If truth lies in the search and not in the cup, philosophical discourse only leads to endless debate and indecision, but philosophy can result in improved decision-making.<sup>1</sup> In General Motors heyday, Alfred Sloan practiced a Hegelian process of antitheses leading to synthesis,

*“...I take it we are all in complete agreement on the decision. Then I propose we postpone further discussion ... to **give ourselves time to develop disagreement** and perhaps gain some understanding of what the decision is all about.”*

So Sloan transposed Karl Popper's view that ideally science should aim at falsifying and not at confirming, a concept that can be translated from science to business. This falsification standard is difficult to apply in the world of real people and organizations. As Thomas Kuhn revealed a generation ago, not even scientists are perfectly-aligned rational seekers of truth. Popper's views put their human capital (e.g., grants, research students, editorships, prizes, titles) at risk, leading to a confirmatory bias. Investment professionals suffer from that same agency virus in developing and implementing investment beliefs.

The right questions about investing today should include the following: Do markets allocate capital optimally? Should our decisions optimize or merely satisfy, in Herbert Simon's

sense? Do markets self-correct quickly enough, or at all? Is the standard economic model of rational expectations deeply misleading? Are markets efficient under any interpretation? Is equilibrium inappropriate in economics and financial markets? Are there *absolute* ethical standards that transcend social and cultural norms, or do the ethical standards of the investment world differ from those of other groups? If so, should these differ? These questions have a harder edge since corruption has begun leaching out from Wall Street.

Today's complex financial derivatives come from an ideal platonic world of form and ideas built by financial engineers, who are our modern day philosopher kings. Mere mortals were left to suffer from the corrupted real world manifestations. Similarly, market fundamentalists believe devoutly in the sanctity and purity of their models and theories such as General Equilibrium. To them ideal theories are right and their shadows, the markets populated by imperfect people and institutions, are wrong. Utopian beliefs in perfect markets, organizations, and ways to conquer risk have been a persistent and misleading feature of the debate about solutions to the crisis.

Galileo's belief that the book of nature is written in the language of mathematics was transferred literally to the book of finance and investing. Andrew Lo called it “physics envy”. Einstein's extension of Galileo's belief, that the search for beauty is *the* most potent source of truth in physics, is often implicit and potentially damaging in investments, as evidenced by the near fatal attraction of the elegance of the Efficient Market Hypothesis.

Nonetheless, a belief in parsimony, in a wielding of Ockham's razor, is a virtuous source of value in investing, especially when supported by nuanced insights such as Alfred North Whitehead's, "Seek simplicity ... but mistrust it."<sup>2</sup>

The ancient Peripatetics have proved, for agency reasons, that nothing ever changes. The past two years have exposed some financial markets neo-Peripatetics who, also for agency reasons, believe that nothing has fundamentally changed. Letting go of old beliefs is proving very difficult. For example, though they acknowledge that 'fat tails' are now more common due to increased complexity, the comforting belief that large events are extremely rare anomalies still persists. Similarly, the continuous-time finance belief in the infinite divisibility of time lives on. This idea was seriously tested two decades ago when 'gapping' destroyed portfolio insurance, and again recently, when the global credit markets seized up. As a third example, the much-needed and beloved notion of equilibrium continues to be embraced, despite Wray's (2008) clear exposition of Minsky's instability of stability hypothesis, and Farmer and Geanakoplos' (2008) challenge to the equilibrium concept on a more technical level.

All of these questions and answers and the explicit or hidden beliefs behind them are at heart, philosophical. Yet how these are addressed has serious pragmatic consequences for investors.

## Pragmatic Consequences

A statement of investment beliefs captures the essence of an investment philosophy. Its formality institutionalizes these beliefs, for better and worse. For better, since explicit beliefs are harder to finesse. For worse, since these might become inflexible. A useful hedge against inflexibility is to regularly interrogate through two Popper-inspired questions: Which beliefs are you *least* confident about, and what evidence and arguments would *falsify* these beliefs?

How might we best define investment beliefs? These are assertions about critical aspects of investing regarding the drivers of return generation, the multi-dimensional nature of risk, the dynamic scenario-dependent trade-offs between the two, and expectations about outcomes, behaviours, and others' expectations. Explicit beliefs aid good governance by guiding decision-makers in developing, executing, and monitoring investment strategies. As such, they should include justifications as to why the fund has the ability and resources necessary to effectively *implement* their beliefs. Sound investment beliefs also aid communication and help navigate the flood of information that engulfs us.<sup>3</sup> These beliefs guide selection by purposely helping investors distinguish between the crucial, interesting, useless, and drivel-induced information.

They determine what should be paid attention to, and even more critically, what should not. To that extent, these beliefs facilitate the institutionalization of good practices.

But why do we need beliefs? Do the frozen chicken or internet technology industries need them? No, because as Raymond (2008) clearly illustrates, the investment industry is unique. What is capable of being known about investments and financial markets is heavily circumscribed by the massive uncertainty intrinsic to capitalism, which is largely a response to feedback mechanisms driven by humans. Perversely, through arbitrage, those mechanisms entail the eventual failure of successful strategies, a characteristic (almost) unique to investing. The more houses that are insured, the better off we are. The more complex derivatives we write, the more likely an eventual loss and the worse off we are.

Explicit beliefs should be rational in that they are capable of being "... validated by combinations of clear logic and sound research. Such beliefs are powerful guides to value-creating investment decision-making and implementation," (Ambachtsheer, 2007). Rationality entails relying on the best thinking, theories, and data available. Rational analysis hedges the risk of beliefs degenerating into myths or fables (Damodaran, 2004). The notoriously low signal to noise ratio of financial markets allows different funds to hold different, but rational beliefs consistent with history, in contra-distinction to the homogeneity of beliefs explicit in the Capital Asset Pricing Model (CAPM). In contrast, Kurz (2004), and Fama and French (2005) develop models that allow for heterogeneity.

Differing theories and beliefs are important because they encourage and validate contestability, a valuable defence against individual and organizational behavioural weaknesses. Our limitless need for herding and approval, as well as our limitless ability for self-delusion and irrationality can lead us to see the world as we would like it to be, rather than as it really is. Well argued, articulated, and contestable investment beliefs mitigate that risk, but not completely. A millennium ago, some Christian sects articulated the antithesis of rationalism, which entailed believing in things that were not yet understood. A post-modern version of this is the current fad of relying on psychics for financial advice, encapsulated by the slogan "Advice on Love, Jobs, and 401(k)s", which is a desperate wanting to believe in soothsayers.<sup>4</sup> That truth and reason are the first casualties of crises is now painfully evident.

## Re-Assessing Old Beliefs

The current dislocation provides an opportunity to test, refine, modify, and adapt investment beliefs and the strategies derived from them. For instance, an explicit investment belief that

emphasizes relative versus absolute performance is stress-tested when public equity markets are down forty-three percent and a very successful manager, down only thirty-three percent, expects an incentive fee for his unrepeatably alpha of 1000 basis points. Will the fund resent paying that to a manager that lost one third of its mandate? An explicit belief in the efficacy and alignment of performance-based fees is now blatantly contestable.

Some years ago, well ahead of the crisis, Bernstein (2003) and others challenged the popular explicit belief in static policy mixes. He argued that in increasingly complex and dynamic markets, policy mixes also need greater dynamism. Beliefs about asset allocation are notoriously confused to the point where either no one, or everyone, is responsible for active decisions. Lack of clarity can often be traced to an implicit or inadequately argued *disbelief* in market timing. But no strategy can be eternally successful. All investors must practice some type of timing, though none should believe they can pick turning points. A crisis-driven, deeper consideration around timing might challenge the soundness of beliefs in tightly-managed mandates. Some active equity managers would probably have had sizeable cash holdings over the past two years had they been allowed to hold them. That said, managers are quickly fired for going beyond the two to three percent cash needed for liquidity.

Rational beliefs will rarely be abandoned, but investors must be open to that possibility. The belief, enshrined in texts that no country would default on its sovereign currency bonds, was abandoned when Russia did default. The impossibility of stagflation was abandoned when it too occurred, as it may again soon. Did anyone even imagine the possibility of American Treasury Bills having a negative implied yield? Rational historical analysis, armed with such counter-examples, hedges our comfort-driven desire to extrapolate the supposedly known past - a desire that frequently leads us to miss change even after it arrives.<sup>5</sup> Even the bond market, that information-smart, forward-looking mechanism, sometimes fares very poorly. As late as July 1914, European bond yields had barely budged (Ferguson, 2005).

## Balancing Flexibility and Steadfastness

Beliefs need to evolve ahead of the market's evolution, but not too far ahead. Pragmatic beliefs should vary in intensity with changes in markets. Otherwise, they become rigid, ossified dogma. During periods of crisis and dislocation, interpretations need firmness. During periods of high uncertainty as to what is driving markets, they need robustness. A belief in the efficacy of quant in managing hedge funds and listed equities was seriously challenged in mid 2007. Now that quant assets under management are so extensive, for instance, almost all 130/30

strategies are quant, a belief in its competitive advantages needs to be reconsidered.

For beliefs to evolve these need to be flexible, but not so flexible or generic that they are incapable of guiding pragmatic decision-making.<sup>6</sup> A manager's belief that equity markets are inefficient is useless unless backed by beliefs in specific inefficiencies the manager can exploit effectively. An articulated belief in the predictive power of mean reversion is insufficient as a decision-making tool without a further belief about the uncertain flight-path from Ben Graham's voting machine to his weighing machine. Like political and ethical principles, beliefs that are too broad slide into motherhood status.

Belief systems can also be too *inflexible* to be useful. Those based on a strict commitment to an ideology are counterproductive in investments and politics. Capitalism's great strength lies in its flexibility, adaptability, and unwillingness to become ideological. The resilience in the United States comes from explicit, open beliefs in individualism, blended with implicit, hidden beliefs in socialist stimulation from Land Grant Colleges and railways, to transistors and the internet, to the nationalization of banks. The failure of Soviet communism lay in a rigidity born of ideology. Chinese and Vietnamese versions are far more adaptable.

Another source of rigidity is inappropriate formalism and precision. Formalized beliefs expressed in a few declarative sentences will fail to capture the subtleties and nuances of experts' working insights. Experts, notoriously incapable of articulating their beliefs or decision-making processes, differ from formal statements by the depth of their intuition and the holistic and tacit nature of their understanding. Investment beliefs need to recognize that reality. Like political and ethical principles, beliefs that are too narrow become excessively prescriptive.

## Concrete Examples and Cases

Concrete examples, actual and hypothetical, add subtlety and nuance to investment beliefs. Consider a fund that enters into a private equity deal with a company that seeks only patient investors that are critical to its long-term growth. Two years later, returns have been so spectacular that the fund decides to redeploy capital more effectively elsewhere. The fund sells and is accused of short-termism in conflict with its explicit long-term investment belief. Discussing the pros and cons of that decision can forewarn actual decision-makers. Similar examples that focus on illiquidity may have helped funds avoid some current traps. For instance, could a fund ever be seventy-five percent invested in a strategy with a ten to fifteen year lock-up, no matter how attractive the expected risk-adjusted returns or how long the fund's investment horizon?

Or consider a fund whose key objective is to return Consumer Price Index (CPI) plus five percent over the longer term. What level of exposure to default risk-free, CPI-linked bonds could the fund tolerate if they are priced at 5.2 percent? Answers to these sample questions help clarify conflicts between objectives, expose limits on the applicability of investment beliefs, and reveal beliefs and principles that lie hidden. For instance, a belief in the importance of absolute performance is tested by a sharp question posed by Andrew Smithers. If an oracle guarantees a seventy percent chance of the equity market falling next year, do you take the thirty percent chance of being wrong and go alone by allocating out of equities, or stay with the herd and expect to lose money?

Two research questions flow from the above discussion. First, are beliefs the pragmatic decision-making guide they are held out to be, or are they largely puffery? Koedijk and Slager (2009) have initiated a program of regressing beliefs against patterns of returns with interesting results. For example, "... funds with beliefs about risk diversification show better risk/return performance measures, as well as lower costs". Detailed case studies would generate further practical insights for investors. Second, what are the *hidden* beliefs that underlie explicit investment beliefs, and what role do these play in decision-making?

## Exposing Hidden Beliefs

Like Russian dolls, all formal statements of beliefs are grounded in further beliefs about philosophy, human and organizational behaviour, and society. These are embedded so deeply in our psyche that we cannot or will not articulate them. Skilled observers can infer them from investors' behaviour and decisions. Behavioural finance has exposed many of these hidden beliefs and biases. Some, naïve extrapolation for example, have provided us with evolutionary advantages in the forests and veldts of Africa, but are disadvantageous in the jungles of Wall Street.<sup>7</sup> Thaler (2005) highlights the importance of how these beliefs are formed and their effect on decision-making. Hidden beliefs transcend these priors and include beliefs about how individuals, groups and institutions do and should respond to various social, political, and economic circumstances. Examples include a belief that free, unconstrained markets form an optimal and trustworthy system, that financial compensation is the dominant, if not the sole motivator of people, and that conservatism increases with age.

Kuhn has shown that even the supposedly rational and open source structure of the scientific endeavour is driven by unspoken paradigms and hidden beliefs. We must expect far stronger effects in investments, where we know decisions are often supported by naïve, historical beliefs. Historiography, the

philosophy of history, drives and distorts our interpretation of and reliance on past events. So for example, Marxist historians see the past through the lens of economics and power struggles. In contrast, Neo-Whig historians see the past as prologue, as one of almost linear and eternal progress. To them the current crisis is but a painful blip in the inexorable path towards ever more financial innovation. Both contain the corrupting seeds of inevitability. Both can lead us astray.

Too often, beliefs are synonymous with desires. To (mis)quote the Belgian surrealist René Magritte, "everything we believe hides something we *want* to believe".<sup>8</sup> Some want to believe people are fallen, or that they are intrinsically unethical, or that they are ultimately selfish, notwithstanding evidence on the evolutionary advantages of altruism. Hidden wants play a significant role in investment decision-making, in choosing managers, structuring fees, and trusting people and institutions.<sup>9</sup> The most common instance of Magritte's thesis is our wanting to believe in active management, a belief consistent with Wittgenstein's contention that something is believable if it is conceivable. Typical beliefs in active management are based on the unspoken gambler's belief or desire that the odds are better than average, or that selected active managers are consumption or even luxury goods.

## Ethics and Morality

Belief systems are rarely explicitly about ethics and morality, even though their impact can be profound (Sen, 1998). For instance, they are evident in the sniff of moralizing that shorting is not investing. Ethical questions that should be explicit and integrated into investment beliefs include: What constitutes ethical behaviour? Do ethics transcend legality? Should Boards and managers always be totally honest? How should they handle conflicts of interest? The following, slightly hypothetical story, demonstrates the impact that ethical beliefs can have on investment decision-making. The time is late 1999, the place is a large endowment fund in the United States, and the characters are a Chief Investment Officer (CIO) and an investment committee of raging bulls. The issue is a recommendation from the CIO to the committee to make a large asset allocation move of thirty percent from American equities, then three standard deviations from long-term fair value, to ten year TIPS yielding 4.3 percent real, an investment with neither inflation nor credit risk. The CIO knows the committee will ask for her best estimate of five to ten year returns from these asset classes, an estimate that has American equities returning close to -10 percent real. Having inferred their hidden beliefs, she fully expects her estimate to be dismissed as the stirrings of a demented bear and her recommendation to be summarily rejected. She decides to report her best estimate as zero percent real. She does so and the committee agrees to move ten percent

into TIPS, saving substantial money. Was her behaviour consistent with the fund's investment beliefs? Was her behaviour ethical? Did the ends justify the means?

When Chuck Prince, the ex-CEO of Citigroup, declared that "as long as the music is playing we'll keep dancing," he signalled two hidden beliefs.<sup>10</sup> First, that he was playing pass-the-parcel (i.e. find-a-bigger-fool-than-thee) and second, that short-term share price performance relative to competitors is all that matters. Analysts, fund managers, consultants, and fund executives should have inferred and acted on Citigroup's implicit beliefs and values about business, organizations, people, markets, and ethics. As Heilbroner and Thurow (1994) stated eloquently at the end of an earlier and more benign crisis,

*"... the real challenge does not lie in our economic problems, but in the political and moral values that always enter into our economic determinations. Economics is the language we use to talk about the workings and options of our system, but it is not the language in which we appraise the value of the system or decide what elements in it to preserve or change. Politics and morality – our collective wills and our private value systems – remain the bedrock of society. The outcome of the crisis of our times will reflect the strength of that will and the quality of those values."*

## Hold On Or Let Go?

Investment beliefs are a key component of effective investment decision-making and governance. Their effectiveness can be enhanced by exploring the deeper inter-related beliefs that lie hidden under the formal statements. These include the hidden beliefs we all hold about markets, people, organizations, society, and ethics. The current crisis offers a rare opportunity to reassess stated beliefs and to expose hidden beliefs behind them - a process that demands courage and skill.

Philosophy, too often dismissed as irrelevant, can play a useful role in that process as a tool of independent analysis. Indeed, one critical organizational and individual challenge regarding investment beliefs is profoundly philosophical. To be useful, investment beliefs must be flexible and simultaneously firmly held, a Tao-like challenge expressed by the film director Peter Brook.<sup>11</sup>

*"I have **never** believed in a single truth. Neither my own, nor those of others. I believe in all schools [of thought, that] all theories can be useful in some place, at some time. But I have discovered that one can only live by a passionate, and absolute, identification with a point of view. However, as time goes by, as we changed, as the world changes, targets alter and the viewpoints shift... For a point of view to be of any use at all, one must commit oneself totally to it, one must defend it to the very death. Yet, at the same time, there is an inner voice that murmurs: **Don't take it too seriously. Hold on tightly, let go lightly.**"*



## Endnotes

1. Thanks to Don Raymond and Tony Day for stimulation, to Jean Frijns for the direct editorial criticism few offer, and to Keith Ambachtsheer for reducing the impact of a cryptic style.
2. Whitehead was an early twentieth century British philosopher famous for writing the mammoth *Principia Mathematica* with Bertrand Russell.
3. See Frankfurt (2005) for a philosopher's position on communicating and deceiving.
4. New York Times, November 23, 2008.
5. The ex Foreign Editor of the Boston Globe, then based in Berlin, claims that none, politicians, journalists, or academics, had a hint of the collapse of the Berlin Wall. (Private communication).
6. Edmund Phelps, a Nobel winner, reports that following the collapse of commodity prices in 1929, Keynes concluded that "investors' beliefs were 'flimsy'. As one investor, then others, desert, the asset price, previously rising, may merely falter at first but finally collapses sharply along with the conventional belief." Financial Times, November 5, 2008.
7. Boards might benefit from a Tennessean Trustee, who, not believing in evolution, might just be immune from its induced biases.
8. Magritte's "see" has been replaced by "believe".
9. Artificial Intelligence Inference Machines that take actual decisions as inputs and generate hidden rules of inference as output might reveal beliefs and rules used by decision-makers.
10. Financial Times, July 9, 2007.
11. This somewhat undermines my (explicit) belief that other industries do not need beliefs.

## References

- Ambachtsheer, K. (2007). "Investment Beliefs in the 21st Century: Separating Signal from Noise", *The Ambachtsheer Letter*, #259. See also #226 (2004) and #228 (2005).
- Bernstein, P. (2003). *Economics and Portfolio Strategy*. March 1.
- Damodaran, A. (2004). *Investment Fables*. Princeton: Princeton University Press.
- Fama, E. and K. French (2005). "Disagreement, Tastes and Asset Prices", Working Paper. doi:10.1016/j.jfineco.2006.01.003
- Farmer, D. and J. Geanakoplos (2008). "The Virtues and Vices of Equilibrium and the Future of Financial Economics" Working Paper. doi:10.1002/cplx.20261
- Ferguson, N. (2005). "Is the World a Riskier Place?". *Merrill Lynch Global*. July 29.
- Frankfurt, H. (2005). *On Bullshit*. Princeton: Princeton University Press.
- Grant, J. (2008). *Grant's Interest Rate Newsletter*. May 2.
- Heilbroner, R. and L. Thurow (1994). *Economics Explained*, New York: Simon and Schuster.
- Koedijk, K. and A. Slager (2009). "Investment Beliefs: The Importance of Focus for an Institutional Investor". *Rotman International Journal of Pension Management*, Volume 2, Issue 1, Spring 2009. DOI: 10.3138/rijpm.2.1.12.
- Kurz, M. (2004). *Assets, Beliefs and Equilibria in Economic Dynamics*. Berlin: Springer.
- Raymond, D. (2008). "Investment Beliefs", *Handbook of Finance. Vol II – Investment Management and Financial Management*. Hoboken: John Wiley and Sons.
- Sen, A. (1988). *On Ethics and Economics*. Oxford: Blackwell.
- Thaler, R. (ed) (2005). *Advances in Behavioural Finance. Vol II*. Princeton: Princeton University Press.
- Wray, L. R. (2008). "Financial Markets Meltdown. What Can We Learn From Minsky?", *Levy Economic Institute, Public Policy Brief*, #94.

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