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Reflections

Beyond Portfolio Theory: The Next Frontier

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There is broad consensus among finance and investment academics about where investment theory's next frontier lies. For example, in his recent award-winning Perspectives article, Robert Merton (2003) reviewed "the rich set of tools" academia has bestowed on the practitioner community over the course of the last 50 years.[1] The challenge now, he opined, is to put these tools into practice. He concluded, "I see this as a tough engineering problem, not one of new science" (p. 23). Similarly, in their recent award-winning book on strategic asset allocation, John Campbell and Luis Viceira (2002) concluded:[2]

> One of the most interesting challenges of the 21st century will be the development of systems to help investors carry out the task of strategic asset allocation. (p. 225)

So, investment theory's next frontier seems to be about engineering systems to create better financial outcomes for investors. But is that really true?

Without doubt, the academic community can be proud of its intellectual achievements since the publication of Harry Markowitz's seminal 1952 treatise on portfolio selection.[3] The cited writings by Merton and by Campbell–Viceira offer important examples of how Markowitz's original version of portfolio theory has been extended:

- Most investment contexts require the consideration of multiple horizons rather than a single horizon. In some cases, short-horizon considerations dominate; in others, the primary focus should be on assessing long-horizon outcomes.
- Prospective future cash flows (and their purchasing power) typically offer a more useful perspective for assessing the reward and risk of long-horizon investment strategies than do future wealth prospects. Thus, in most cases, long-term inflation-linked bonds are the natural reference portfolio for assessing the reward and risk of alternative investment strategies.
- For individuals, investment-related rewards and risks should be integrated with other considerations, such as human capital–related rewards and risks, longevity/mortality, real property, and education. Corporations also need to adopt this broad, integrative approach to managing investment-related rewards and risks (in their pension funds, for example). The same is true for endowments and foundations.
- Long-horizon prospects for equity and bond returns have time-variant, predictive components. Therefore, strategic asset allocation should always be a dynamic, rather than a static, process.

These four extensions of "old" portfolio theory represent major advances in investment theory, as it is broadly defined. However, does that reality logically make the "engineering of systems" to incorporate the extensions into practice the next frontier for investment theory?

The time has come to integrate the insights offered by information theory and principal–agent theory with the tools of portfolio management into a holistic, comprehensive theory of investing.

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Two More Considerations

Before we settle on what investment theory's next frontier really is, we should consider two additional (related) bodies of thought—information theory and principal–agent theory:

- *Information theory* addresses the question of whether economic actors (e.g., buyers and sellers of investment-related services) are in equivalent positions from an information perspective as they make decisions. It also addresses the economic consequences of informational asymmetry.
- *Principal–agent theory* addresses the question of whether or not the economic interests of principals (e.g., individuals) and agents making decisions on their behalf (e.g., investment organizations) are aligned. It also addresses the economic consequences of misalignment.

Both theories have rich academic histories of their own. For example, George Akerlof's (1970) classic article, "The Market for 'Lemons,'" was published more than 30 years ago.[4] In it, Akerlof asked why the prices of new cars plummet once their owners drive them off the lot. His answer is the informational asymmetry between the owner of the (now used) car and any future buyer. The sellers of used cars know whether or not their cars are lemons; the buyers do not. Used-car pricing reflects this reality.

What about the market for investment management services? In this market too, sellers typically know a great deal more about what they are selling than buyers know about what they are buying. In John Maynard Keynes' famous 1936 "beauty contest" analogy, the service sellers' challenge is to persuade buyers that the sellers are better than their competitors at forecasting which securities the participants in security markets will find most beautiful tomorrow.[5] The service buyers' challenge is to figure out whose claims to believe (a practically impossible challenge for nonexperts). In such a market, pricing (i.e., fee structure) does not determine market share; what determines market share is the persuasiveness of a seller's message.

The acute informational asymmetry characteristic of the financial services markets leads logically to principal–agent considerations. The classic treatise in this field is *The Modern Corporation and Private Property* by Adolf Berle and Gardiner Means (1933). They examined the implications of the separation of corporate ownership and control at a time when the robber baron era of capitalism had ended. In the new world, where owners were millions of remote, faceless shareholders rather than powerful individual owner/managers, Berle and Means wondered: Would boards of directors and managers continue to serve the financial interests of shareholders? Or would they use their power to serve their own interests?

The financial services arena today contains a clear parallel to these questions. Now, we ask: In a world where the clients/beneficiaries of various types of financial services organizations (e.g., pension funds, mutual funds, endowment funds, insurance providers) are millions of remote, faceless individuals, will the boards and managers of the organizations and the service providers they hire serve the financial interests of the clients/beneficiaries? Or will they use their power to serve their own interests?

Integrative Investment Theory

So, yes, practitioners should incorporate into old portfolio theory the cornucopia of conceptual and empirical jewels the academic finance and investment community has bestowed on them during the past 50 years. But that extension is not enough. We need more than simply the reengineering of investment decision systems. We must also integrate into our new investment model the profound issues raised by (1) the highly asymmetrical distribution of information in the financial services marketplace and (2) the fact that millions of ultimate beneficiaries at the bottom of the financial food chain rely on a mosaic of intermediary (agent) organizations to provide products and services that truly serve the beneficiaries' interests.

Imagine an investment theory that integrated old portfolio theory with post-1952 technical offerings of academia and also the economic concepts of asymmetrical information and potential misalignment of economic interests. Such a theory would recognize that client/beneficiary value creation is a function of the successful integration of five value drivers; that is,

$$\text{Client/beneficiary value creation} = f(A, G, R, IB, FE),$$

where:

A = agency issues
G = governance
R = risk issues
IB = investment beliefs
FE = financial engineering

From Better Theory to Better Outcomes

Would the implementation of a more holistic, integrative theory of investing produce better outcomes for the clients/beneficiaries of financial services organizations? I have no doubt that it would. Consider how the value drivers could be integrated.

Agency Issues. Agency issues can hinder client/beneficiary value creation in a number of ways, all of which lead to clients/beneficiaries being financially disadvantaged by their agents. Thinking what can be done to minimize agency problems can pay large dividends, however, for the clients/beneficiaries of financial services organizations.

In my judgment, the premier agency issue in the financial services industry continues to be the inherent conflict that results from for-profit organizations providing management services directly to millions of mutual fund investors. The combined forces of acute informational asymmetry and pronounced principal–agent problems logically lead to many clients paying too much for too little. These forces, and their adverse effects on clients, continue to be a major public policy issue today, despite being identified by Jack Bogle as early as 1950.[6] More than 50 years later, despite token efforts by securities regulators, this issue has yet to be addressed in the fundamental manner it deserves.

Variants on this same broad agency theme play out when for-profit organizations sponsor defined benefit (DB) or defined contribution (DC) pension plans. For example, within two years of the enactment of ERISA on Labor Day 1974, Jack Treynor, Patrick Regan, and William Priest (1976) showed that ERISA's requirement to manage corporate DB plans "for the sole benefit of the beneficiaries" is pure legal fiction. Corporate managers can also choose to have serious skin (their own and their shareholders') in the pensions game. In doing so, they create situations that lead to conflicting interests between themselves, plan members, and shareholders that are, at best, extremely difficult to resolve. In the end, arm's-length, not-for-profit co-ops with the necessary scale and scope to be cost-effective offer the best hope to rectify the "too little value at too high cost" outcomes that combinations of informational asymmetry and misalignment of economic interests continue to create for millions of clients/beneficiaries.[7]

Governance. Addressing agency issues is a necessary but not sufficient condition for enhancing client/beneficiary value creation. There is no guarantee that an arm's-length, not-for-profit co-op will be well managed. Just as an evolving body of thought constitutes finance/investment theory today, so an evolving body of thought constitutes governance and organization design theory. This theory provides the context for articulating an organization's mission, delegating strategic planning and implementation to a competent executive team, and regularly monitoring progress toward mission achievement.

Integrating elements of governance and organization design theory, I and my co-authors showed in 1998 that pension funds with strong governance and organization design characteristics have outperformed those with poor characteristics by a statistically significant 1 percent a year, net of operating costs and adjusted for differences in investment policy (Ambachtsheer, Capelle, and Scheibelhut 1998). Yet even today, seven years later (despite some notable exceptions), spanning the globe from Europe across North America to the Far East, issues of governance and organization design continue to receive only sporadic attention in organizations active in the financial services arena.

Risk Issues. The portfolio theory of the 1950s dealt with investment risk and risk tolerance in a creative but limited way. Academia has moved the yardsticks of relevant, practical risk definitions and measurement considerably since the early days. The challenge now is to move these new risk concepts into practice. This requires, for example, that the governors of pension and endowment funds insist that risk definitions and risk management be relevant to the specific contexts of their clients/beneficiaries.

As a specific example, DB pension plans undertaking balance sheet mismatch risk represent a complex web of contingent claims that various stakeholder groups have "issued" to/on each other. Yet despite the fact that the Black–Scholes principles for the valuation of contingent claims have been with us for 30 years now, the study of their implications for the establishment of risk tolerances for pension plan stakeholders, or for how DB balance sheets should be valued and disclosed, has barely begun. To their credit, Dutch academics and practitioners have taken the lead in developing these important ideas.[8]

Investment Beliefs. The degree to which an investment organization believes prospective return components are predictable over multiple horizons should be an important determinant of how its investment processes are structured. For example, if the expected equity risk premium is always equal to its historical 5 percent realization, "investing" for most pension and endowment funds boils down to taking on lots of equity market exposure to generate return and some bond market exposure to create a modest risk buffer. Attempting to produce a bit of net alpha by taking on a bit of additional risk becomes a justifiable sideshow. This simple investment paradigm logically leads to the common practice in pension and endowment funds of maintaining static policy portfolios over time.

This practice becomes dangerously simplistic, however, if the expected equity risk premium varies materially over time in at least a partially predictable manner, as in fact, appears to be the case.[9] Now, the proper management of risk leads to policy portfolios that vary in composition over time.

Similarly, today's definitions and measurement of "investment styles" do not stand up well when rigorously assessed in the light of defensible investment beliefs. For my money, Keynes' beauty contest analogy still offers the best model for genuine investment style differentiation. At the most fundamental level, he asserted, there are only two investment styles—the agency-driven beauty contest style and the principal-driven value-creation style. Almost 70 years ago, Keynes lamented that he saw too much beauty contest investing and too little investing that created genuine economic value for clients/beneficiaries. If Keynes were alive today, he would observe that there is not much new under the sun. Yet, the potential supply of value-creation investment services is as alive and well today as it was in Keynes' day. What remains in short supply is a genuine demand for such services.[10]

Financial Engineering. Integrating properly specified client/beneficiary risk tolerances with time-variant return expectations in a noisy, complex investment arena full of fees and transaction costs is no mean task. Here is where well-engineered, integrative investment systems can add significant value. As Merton noted in his 2003 Perspectives piece, the array of investment tools in the implementation toolkit continues to grow faster than institutions and investment professionals can devise ways to use them. My own modest contribution in the 1970s was to build and sell portfolio-rebalancing tools that measured and weighed the limited information content in analysts' alpha predictions against portfolio risk constraints and the certainty of transaction costs. Thus, the term "information coefficient," or IC for short, entered the financial engineering lexicon.[11] Today, Bob Litterman and his colleagues (2003) need a 626-page book to describe the tools in the current financial engineering toolkit.

Selecting the right tools out of the toolkit requires context, which is where the prior, effective integration of risk issues and investment beliefs is essential. But such effective integration requires, in turn, organizations that have aligned economic interests, mission clarity, and good governance. So, we arrive back where we started. The "Integrative Investment Theory" (IIT) circle is complete.

Evolution, not Revolution

Notwithstanding its logic, IIT will not change the world tomorrow. After all, it took the old portfolio theory 20 years to gain conceptual traction and another 20 years to work its way into investment practices. Fortunately, we are not at ground zero with IIT today. Bogle's 50 years of pioneering work in the mutual fund arena have already been acknowledged. In *The Unseen Revolution*, Peter Drucker (1976) anticipated many of the agency and governance challenges facing workplace pension funds as they struggle to become viable, cost-effective organizations that deliver predictable pension payments.[12] And here we are today, almost 30 years later, finally integrating these agency and governance elements with the basic elements of portfolio theory into a broader, more holistic theory of investing.

I shared an earlier conviction that the adoption of such a broader, more holistic theory would produce better outcomes for the millions of clients/beneficiaries of the financial services industry. Better outcomes in what way? The most direct, measurable outcome would be a material reduction in intermediation costs as financial services organizations were forced to move to a "value for money" philosophy in serving their clients/beneficiaries. But that is not all. IIT also holds the promise of a higher rate of societal wealth creation, as better-governed financial intermediaries reduce agency costs in the organizations they invest in and allocate financial capital more efficiently. That could be the biggest prize of all.

Notes

1. Merton's article received the Graham and Dodd Award for the Best Perspectives piece in the *Financial Analysts Journal* in 2003.
2. This book received the Paul A. Samuelson Award for Outstanding Scholarly Writing on Lifelong Financial Security from TIAA-CREF in 2002.
3. Markowitz (1952). Markowitz was the 1990 Nobel laureate in economics, together with Merton Miller and William Sharpe.
4. Akerlof received the 2001 Nobel Prize in Economics for his contributions to information theory.
5. In the kind of beauty contest Keynes was describing, contestants pick out the six prettiest faces from a hundred photos and the prize is awarded to the contestant whose choice most nearly corresponds to the *average preferences* of the group of contestants. See Chapter 12, "The State of Long-Term Expectation."
6. Bogle provided the historical perspective in a speech titled "Vanguard—Child of Princeton" delivered at Princeton University on 28 May 2004. A 30 September 2004 speech titled "The Convergence of Indexing and Active Management" provided data suggesting that the average mutual fund participant underperforms passive management not only by the annual 2 percent of incremental expenses paid but also by an additional 2 percent a year representing dysfunctional switching between funds. Both speeches can be found at the Bogle Financial Markets Research Center website (www.vanguard.com/bogle_site/sp20040528.htm), together with Bogle's many other speeches, articles, and books on the agency and informational asymmetry issues in the mutual fund industry. In a speech to the American Life Insurance Council (14 October 2002) titled "How We Can Profit from the Experience of Corporate America," Bogle argued that the same dysfunctional dynamics are also at work in the insurance industry.
7. See Ambachtsheer (1994). This article, winner of a Graham and Dodd Scroll Award, sets out the principles for measuring the cost-effectiveness of not-for-profit co-ops, such as co-op pension funds.
8. See Ponds (2003). Holland's two largest pension funds, ABP and PGGM, are funding a major research effort to develop practical methodologies to value pension promises related to both benefits and funding as contingent claims issued and held by various stakeholder groups.
9. See Arnott and Bernstein (2002). This work, winner of the 2002 Graham and Dodd Award for best article, revealed a strong positive correlation of 0.70 over the past two centuries between the expected equity risk premium (calculated by using a simple heuristic) and its subsequent 10-year realization.
10. To Keynes, value-creation investment services focus on generating healthy long-horizon cash flows, net of expenses, for patient investors. I think Keynes would agree that today's low-cost risk-control strategies would qualify under this definition. So would low-cost index-matching strategies as long as they offered an adequate prospective risk premium. Integrative investment theory would suggest that, to minimize agency effects, active value-creating strategies should be implemented inside not-for-profit co-ops or outsourced to outside investment agents prepared to operate under economically fair, transparent reward- and risk-sharing arrangements.
11. Ambachtsheer and Farrell (1979). This Graham and Dodd Scroll Award–winning article was the last in a series of articles I wrote on measuring and using return predictions with limited information content that appeared in the *FAJ* and the *Journal of Portfolio Management* during the 1970s. The term "information coefficient" first appeared in 1974.
12. In the foreword to a reissue in 1996 of the original book, Drucker wrote, "No book of mine was ever more on target than *The Unseen Revolution,* first published in 1976. And no book of mine has ever been more totally ignored. . . ."

References

Akerlof, George. 1970. "The Market for 'Lemons': Quality, Uncertainty, and the Market Mechanism." *Quarterly Journal of Economics*, vol. 84, no. 3 (August):488–500.

Ambachtsheer, Keith. 1994. "The Economics of Pension Fund Management." *Financial Analysts Journal*, vol. 50, no. 6 (November/December):21–31.

Ambachtsheer, Keith, and James Farrell. 1979. "Can Active Management Add Value?" *Financial Analysts Journal*, vol. 35, no. 6 (November/December):39–57.

Ambachtsheer, Keith, Ronald Capelle, and Tom Scheibelhut. 1998. "Improving Pension Fund Performance." *Financial Analysts Journal*, vol. 54, no. 6 (November/December):15–21.

Arnott, Robert, and Peter Bernstein. 2002. "What Risk Premium Is 'Normal'?" *Financial Analysts Journal*, vol. 58, no. 2 (March/April):64–85.

Berle, Adolf, and Gardiner Means. 1933. *The Modern Corporation and Private Property*. Revised ed. New York: Harcourt, Brace, and World.

Campbell, John, and Luis Viceira. 2002. *Strategic Asset Allocation: Portfolio Choice for Long-Term Investors*. New York: Oxford University Press.

Drucker, Peter. 1976. *The Unseen Revolution: How Pension Fund Socialism Came to America.* New York: Harper & Row.

Keynes, John Maynard. 1936. *The General Theory of Employment, Interest, and Money*. New York: Harcourt, Brace.

Litterman, Robert B., and Quantitative Resources Group. 2003. *Modern Investment Management: An Equilibrium Approach*. New York: Wiley Finance.

Markowitz, Harry. 1952. "Portfolio Selection." *Journal of Finance*, vol. 7, no. 1 (March):77–91.

Merton, Robert. 2003. "Thoughts on the Future: Theory and Practice of Investment Management." *Financial Analysts Journal*, vol. 59, no. 1 (January/February):17–23.

Ponds, Eduard. 2003. "Pension Funds and Value-Based Intergenerational Accounting." *Journal of Pension Economics & Finance*, vol. 2, no. 3 (November): 295–325.

Treynor, Jack, Patrick Regan, and William Priest. 1976. *The Financial Reality of Pension Funding under ERISA*. Homewood, IL: Dow Jones–Irwin.