Differential Portfolio Advice: Defining Investor Segments

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Why This Paper Matters

This paper sets out a framework that can be used to develop differential portfolio advice. The paper starts by identifying assets by client segment. It goes on to argue that investment horizon can be a differentiating characteristic across investor segments.

Who Should Read This Paper

This paper should be of interest to investment strategists focusing on asset allocation and portfolio construction.

01. Introduction

In his Presidential Address to the American Finance Association, John Cochrane challenged investment managers to build an industry based on differences across investor segments.[1] His thesis was that advances (both theoretical and empirical) make it possible for investment managers to offer solutions that respect differences across investor segments. This paper is the first in a series of four that explores how to respond to this challenge.

The premise of our series of four papers is that differences in investor segments are attributable to differences in attitudes towards risk and differences in underlying sources of wealth (e.g. labor income and/or resources). In our view, better long-term solutions explicitly account for these differences and at the same time respect the idea that markets are, over the long term, efficient. Furthermore, we believe that understanding differences across investor classes is critical to identifying the appropriateness of factor-based investment strategies.

This paper provides a foundation for differential portfolio advice by analyzing major investor groups. In the next section, we identify five principal institutional and individual investor segments and the capital invested by each segment. We then briefly discuss reasons why behavior may vary across investor groups, with a specific emphasis on the role of investment horizon. In the third section, we motivate the role of uncertainty about future economic prospects as a potential explanation for why investment horizon could be a differentiator across investor groups.

In the next paper in this series, we explore the implications for portfolio strategy when we allow for differences in attitudes towards risk. The third paper in this series addresses the impact on portfolio strategy when the effects of differences in underlying economic risk are incorporated. The final paper in this series analyzes the combined effects of differences in investment horizon and underlying economic risks.

[1] John Cochrane, "Discount Rates", Journal of Finance, August 2011

02. Where Are The Assets?

This section identifies major investor groups and discusses possible differences across groups. Exhibit 1 shows the distribution of assets for five broad and global investor groups. The exhibit shows the dollar value of assets held by Sovereign Wealth Funds (SWFs), Defined Benefit Plans (DBs), Endowments and Foundations (EFs), Defined Contribution and IRA funds (DC/IRA) and High Net Worth investors (HNW)[2]. The exhibit also shows the dollar value of assets held by the largest investors in the SWF, DB and HNW segments. (Data sources are shown in Appendix A).

[2] High net worth investors are defined as individuals with over $1 million in investable assets. According to Capgemini, in 2015 there were approximately 14 million HNW individuals globally. Ultra high net worth investors are defined as individuals with over $30 million in investable assets.
According to Investopedia, there were approximately 175,000 UHNW investors in 2015.

Exhibit 1 - Assets By Investor Segment

INVESTOR SEGMENT	Assets ($ Trillion)	Percent
Defined Benefit Pension	19.7	19.7%
Top 300	15.2	15.2%
Sovereign Wealth Funds	7.3	7.3%
Top 14	6.6	6.6%
Endowment and Foundation	0.8	0.8%
High Net Worth	56.4	56.5%
Ultra High Net Worth	20.8	20.8%
DC/IRA	15.6	15.6%
TOTAL	**99.8**	**100%**

Investor groups can differ from one another in five ways. These are:

- Attitudes towards risk
- Investment horizon
- Underlying and specific economic risks (e.g. sources of income)
- Regulatory and tax environments (e.g. penalties for underfunded pensions)
- Speed of adjustment to new information

This paper focuses on the first and second differences. Let's start by re-examining the asset distribution in Exhibit 1 through the lens of investment horizon.

By design, DB pension plans, SWF and EF are designed to be long (if not perpetual) horizon investors.[3] To illustrate potential differences across investor segments, suppose that DC/IRA investors have finite investment horizons. If this is the case, we can classify them as short-horizon investors. What about HNW investors?

To analyze the impact of horizon on HNW investors, we use the bequest motive. Bequest motives occur when an investor has a preference to fund consumption by future generations. The effect of a bequest motive is to convert a finite-horizon investment problem into a perpetual horizon problem. A priori, it is difficult to know which parts of the HNW group have bequest motives. *For illustrative purposes only*, suppose that all UHNW investors have bequest motives, and all other HNW investors do not.[4] Using the figures in Exhibit 1, around 40% of HNW investors can be classified as long-horizon investors and 60% as short horizon.

Exhibit 2 reorganizes the information in Exhibit 1 by investor horizon. According to the approximations outlined above, long horizon investors hold roughly 49% of the world's assets while short horizon investors hold the remaining 51%. To reiterate - these figures depend on assumptions about bequest motives. In Section 3 we'll discuss the linkage between investment horizon and attitudes towards risk.

[3] This discussion abstracts from whether institutional governance structures promote long-horizon investing.

[4] Alternatively we could scale non-UHNW investors from high to low and choose a lower cut off point for asset holdings at which abequest motive kicks in.

Exhibit 2 - Assets Sorted By Horizon

HORIZON	PERCENT	SOURCE	NUMBER OF INVESTORS
Long	48.7	DB, SWF, EF, UHNW	180,000 (approx.)
Short	51.3	DC/IRA, HNW (other)	Millions

03. Why Horizon Matters

The previous section suggested that it is plausible that investor classes vary by investment horizon. We begin by discussing a source of investment risk that could be linked to investment horizon. Then, we discuss possible reasons why investor classes may vary in their attitudes towards this specific risk.

Let's start with two truisms- first, investment returns are claims on future economic growth. Second, future states of economic growth are uncertain. For example, dividend payments are claims on corporate revenue, which in turn depends on the state of the real economy. Hence, real dividend growth is a claim on a growing real economy.

Exhibit 3 illustrates the connection between real economic growth and real dividend growth. The exhibit plots the level of real consumption and real dividends since 1969 (both series are measured in logarithmic terms). The shaded areas in the exhibit correspond to recession periods (as determined by the NBER).

Three points stand out from the exhibit:

- Consumption is less volatile than dividend growth
- Shocks to economic activity are felt on dividend growth
- Dividend growth and economic activity seem to be highly correlated over long periods

Exhibit 3 - Real Dividend Growth and Real Economic Growth

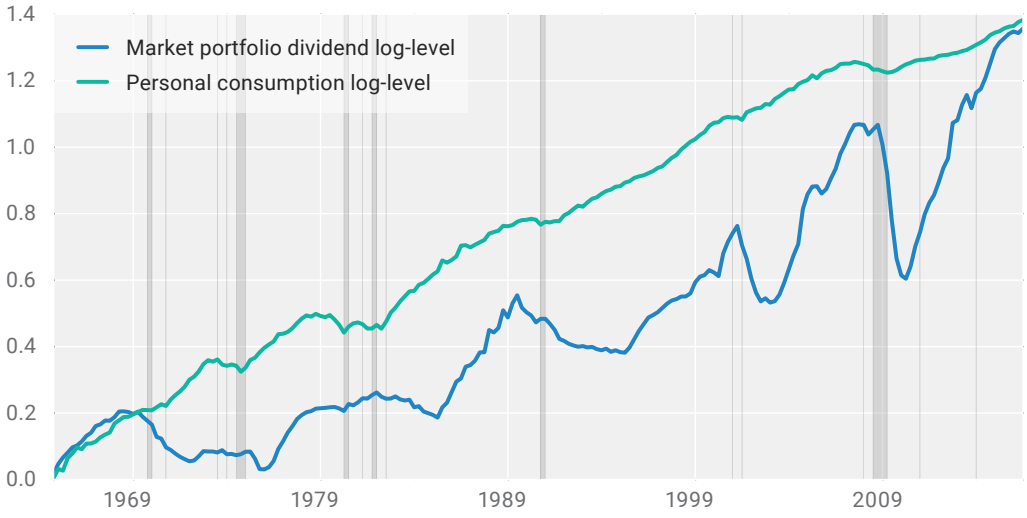


Exhibit 3 suggests that large and persistent shocks to real growth could have consequences for dividend growth. Exhibit 4 illustrates the point about persistent shocks to real economic growth. The exhibit plots three trend lines for real growth in the United States. The first line is the continuation of trend growth using growth data until 2000. The second line is trend growth using growth date until 2007. The third line is actual economic growth.

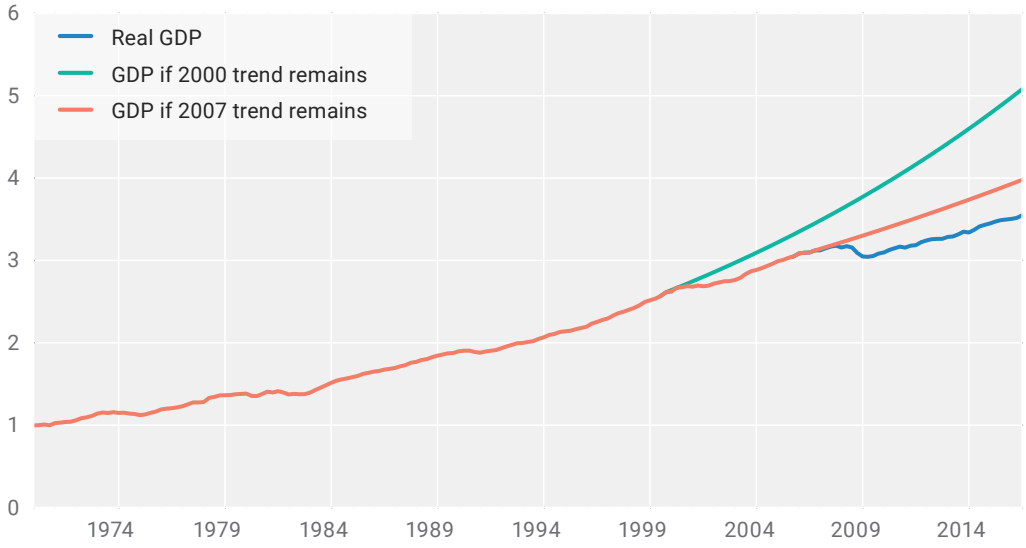
Immediately after the large shock to real growth in 2008, the two natural questions for investors were the following: first, how long will the shock to growth persist? Second, to what trend will real economic growth return? The answers to these questions can be viewed as resolution of long run uncertainty. The asset pricing implications when this uncertainty exists is the subject of the Long Run Risk literature.[5]

LRR is a consumption-based model of asset pricing. In consumption-based models, investors care about the discounted value of current and future consumption- assets are held because they support future consumption. Hence, consumption-based models of asset pricing provide a natural linkage between asset returns and the dynamics driving real economic growth and inflation. Those linkages can be decomposed into distinct linkages between asset cash flows, discount rates and macroeconomic variables.[6] As a result, one differentiation between assets is in terms of their exposures to shocks to real economic growth- some assets may be highly exposed to persistent shocks to growth and others less so.

[5] Important contributors to this literature are Bansal and Yaron (2004), Schorfheide, Song and Yaron (2004), Hansen, Heaton and Li (2008) and Barillas, Hansen and Sargent (2008). This literature relies on consumption CAPM.

[6] Technically the LRR agenda assumes that real consumption growth and inflation are driven by unobservable (latent) factors: long term trend and uncertainty. Loadings on the latent factors can be found by regressing asset returns on the time series of latent factors (conditioned on having identified the latent factors from the macro-economic data). Thus, premiums (e.g. the equity premium or the size and style premium) reflect differences in exposures to the latent factors.

Exhibit 4 - Real Economic Growth



LRR differs from standard consumption-based asset pricing in two respects. First, LRR assumes that the dynamics driving macroeconomic conditions are themselves unknown. For example, there is uncertainty about both the long-term level of real economic growth and the volatility around that mean.

Secondly, LRR assumes that investors care about both risk and the resolution of long-run uncertainty about long-run real growth.[7] Including attitudes towards resolution of uncertainty gives a different interpretation of risk premiums. Premiums can now be viewed as compensation for exposure to persistent shocks to economic growth. Assets whose cash flows are highly correlated with long-run macroeconomic conditions should receive a premium relative to those assets whose cash flow correlation is lower.[8] Differences in premiums will persist as long as differences in exposures to long-term economic growth persist.

LRR addresses the asset-pricing problem for the representative portfolio. However, is it reasonable to assume that all investors share the same attitudes towards risk (and the resolution of long-run uncertainty) as the representative investor? To turn the question around- could investor classes vary in their ability to wait for the resolution of uncertainty?

In our view, it seems plausible to suggest that short horizon investors are less able to wait for the resolution of uncertainty than long horizon investors. Thus, it also seems plausible that (a) the quantification of risk preferences should be different across investor classes and (b) asset demands should be different across investor classes. This topic is the theme of the next paper in this series.

[7] More specifically, LRR uses recursive preferences, and more specifically Epstein-Zin preferences. With E-Z preferences, there is a separation between risk aversion and the elasticity of inter-temporal substitution.

[8] Technically the long run risk literature relies on the potential existence of a slow-moving and predictable underlying trend growth rate. In same spirit, but from a different direction, Barro et al (2009) study disaster risk in real economic growth rates.

04. Conclusions

This paper begins the discussion of differential portfolio advice. Our starting point was to identify major investor classes. We then hypothesized that investors in these classes could have different investment horizons.

We then linked differences in investment horizon to attitudes towards risk. In this discussion, we showed that the impact on real dividend growth rates of shocks to economic growth is felt over long horizons. We suggested that large shocks to real growth introduce uncertainty to investors regarding the persistence of the shock and the resolution of the shock. The literature on long-run risk suggests that this uncertainty is embedded in asset prices.

Finally, we suggested that asset demands could vary by investor class simply because they may vary in their ability to tolerate long-periods of uncertainty about the persistence of economic shocks. Hence, differences in investment horizon, as transmitted through attitudes towards risk, could be one mechanism to promote differential portfolio advice.

The next paper in this series takes up this theme and discusses the implications for portfolio strategy. That paper shows that portfolio composition does change as a function of attitudes towards risk. The results in that paper are useful for developing portfolio strategies to exploit so-called "factor investing".

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APPENDIX A - DATA SOURCES FOR EXHIBIT 1

The following sources were used to fill in the capital allocations in Exhibit 1.

Appendix A - Data source for Exhibit 1

Investor Segment	Data Source
Global Pensions	Towers Watson Global Pension Survey, 2015
DC/IRA	Investment Company Institute, 2016
Endowments and Foundations	
Sovereign Wealth Funds	Sovereign Wealth Fund Institute, 2016
High Net Worth	Capgemini, World Wealth Report
Ultra High Net Worth	UBS/Wealth-X World Ultra Wealth Report, 2013