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## PRACTITIONER'S DIGEST

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### **MEASURING PORTFOLIO PERFORMANCE: SHARPE, ALPHA, OR THE GEOMETRIC MEAN?**

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*Moshe Levy*

Investors typically rank portfolios and funds based on either the Sharpe ratio or on alpha. Indeed, if investors *can borrow as much as they want at the risk-free lending rate*, the fund with the highest Sharpe ratio is the best fund for all investors. While it is obvious that the assumption of unlimited borrowing is unrealistic, the Sharpe ratio is still considered by most investors as the best practical performance measure. Alpha is closely related to the Sharpe ratio, as it tells investors which assets to overweight (or underweigh) relative to the benchmark, and by how much, in order to maximize their portfolio’s Sharpe ratio.

This paper examines the performance of the Sharpe ratio and alpha when borrowing is realistically constrained, and the borrowing rate is higher than the lending rate. We find that both of these measures perform poorly—they yield a ranking that is not well-aligned with investors’ preferences.

The Geometric Mean of returns offers a much better alternative performance measure. It yields a ranking which is much closer aligned with investors’ preferences in the setting with realistic borrowing. This is true for a wide range of preferences. Thus, the Geometric Mean may very well be the most important number to consider when selecting a fund.

### **MARKET TIMING: SIN A LITTLE RESOLVING THE VALUATION TIMING PUZZLE**

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*Cliff Asness, Antti Ilmanen and Thomas Maloney*

Is market timing an useful source of added value or a sin to be avoided? In this article we explore the difference between the encouraging in-sample long-horizon evidence and disappointing out-of-sample performance. We identify two practical challenges faced by contrarian investors. The first is unavoidable: defining cheap and expensive markets when the baseline is moving. The second—the

battle against short-term momentum headwinds (often, for contrarians, “early equals wrong”)—can be addressed by adding a momentum signal to the tactical view.

The article considers how much weight tactical investors should give to contrarian versus momentum signals, and how large tactical tilts should be (the answer: not very large, as they represent a concentrated bet and the evidence is modest). For investors unwilling to add an explicit momentum signal, there are other ways to be a more patient contrarian, such as using a moving average to slow down valuation signals.

Finally, we consider the implications for tactical positioning in the current market environment, and weigh the prospects for normalization of the elevated valuations pertaining at the end of 2016.

## **MULTI-PERIOD PORTFOLIO REBALANCING WITH PERSONAL TAX**

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*Ganlin Xu*

Tax is the most important and most difficult aspect of managing taxable accounts. The difficulty arises from the fact that tax is a current one-time event, while portfolio benefits cumulate into the future. The natural tendency is to adjust current portfolio to an optimal one slowly to avoid a big tax hit. This strategy may entail investors to bear extra market risk longer than necessary. The first result of this paper shows empirically how fast investors should adjust the current portfolio toward an optimal portfolio, thus avoiding unnecessary risk. The modern portfolio theory suggests a different approach, i.e., you should adjust your portfolio initially to the proximity of the optimal portfolio, and try to stay at the proximity subsequently. Even though the initial tax hit is bigger, the subsequent tax hit is almost zero. The overall tax hit is smaller than adjusting the portfolio “slowly”. The traditional Hamilton-Jacob-Bellman approach to find this proximity is infeasible when the number of investable assets is more than six. We overcome this infeasibility by starting with Markowitz and van Dijk’s idea that the value function can be approximated by a quadratic function. From there we can define the proximity of the optimal portfolio by the difference of holdings and capital gains. Instead of assigning arbitrary weights to these variables, we use a Monte Carlo simulation to calculate the utility values of a few states. These utility values define the weight of these variables naturally. At the end, the proximity can be solved with simple quadratic equations. The resulting utility is better than the utility from adjusting “slowly”.

## **WHAT IS VALUE IN AN EQUITY MARKET?**

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*Michael Suen, Hany Guirguis, Stan Beckers and Ted Theodore*

Both investment practitioners and academics are quite aware that there are competing notions of what value is. A number of indicators of value have been proposed and used over the decades. The mere fact of having such competing views suggests there is an inadequacy in and questioning of any single one of them. Judging by the ongoing number of studies of the subject there is good evidence that the question remains very much open.

There is however some implied, but not easily demonstrable, *notion* of a market being cheap or expensive. Our approach directly models this “unobservable” notion into a working measure that we demonstrate not only exists but has practical application.

The insights and contributions of this paper can be summarized as follows:

- We use a novel estimation methodology (Stock and Watson) to derive a true, underlying value index that can be inferred from the traditional value metrics (earnings yield, book-to-price, dividend yield, sales-to-price and Tobin's Q).
- We calculate this value index for the US Stock market over the past 25 years and illustrate how it can profitably be used as a TAA market timing signal.
- We demonstrate that this value metric contains additional (different) information to Shiller's P/E and that it can be further enhanced as a market timing device by combining it with a (price) momentum signal.
- We hint at other possible applications of the Stock and Watson methodology, coping with large data sets, data sources with various frequencies and extending it into a multi-factor framework.