

Foundations of Dimensional's Investment Strategies

Warwick Schneller, PhD, CFA
Researcher

25th October 2017

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Dimensional

Market Prices Contain Relevant Information

Prices Reflect Information

Prices reflect the aggregate expectations of market participants.

Dimensions of Expected Returns

Fairly priced securities can have different expected returns from one another.

Implementation Requires Expertise

Efficiently capturing higher expected returns requires us to use the information contained in security prices rationally.


Dimensional

Market Prices Contain Relevant Information Dimensional

Prices Reflect Information Prices reflect the aggregate expectations of market participants.	Dimensions of Expected Returns Early priced securities can have different expected returns from one another.	Implementation Requires Expense Efficiently capturing higher expected returns requires us to use the information contained in security prices rationally.
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Arithmetic of Active Management Dimensional

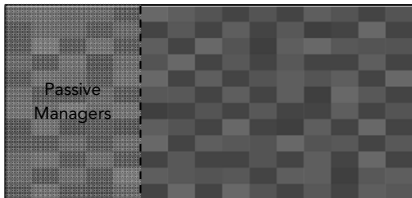
Market Portfolio



The aggregate holdings of all the investors form the market portfolio

Arithmetic of Active Management Dimensional

Market Portfolio



Passive Managers

Arithmetic of Active Management Dimensional

Market Portfolio

Before costs, for an active manager to **outperform** the market...

+

Active Managers

-

...some other active manager needs to **underperform** the market.

Active Managers' aggregate performance, before costs, is the market performance.

Implications of a Well-Functioning Market Dimensional

Prices incorporate relevant information very quickly.

Prices are forward-looking.

Competition makes it very hard to systematically identify and profit from mispricing.

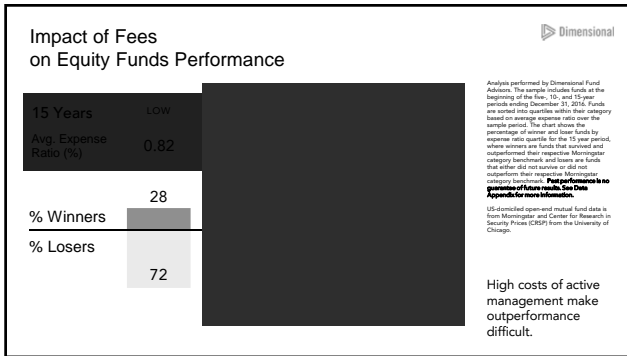
Markets Integrate the Combined Knowledge of All Participants Dimensional

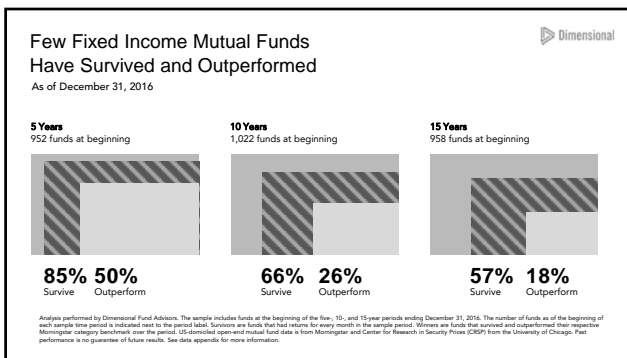
82.7 million
Average Number of World Equity Daily Trades

\$346.4 billion
Average Dollar Volume of World Equity Daily Trades

Trading aggregates a vast amount of dispersed information and drives it into security prices.

Source: World Federation of Exchanges members, affiliates, correspondents and non-members. Trade data from the global electronic order book. Daily averages were computed using year-to-date trades as of December 31, 2016, divided by 250 as an approximate number of annual trading days.





Key Takeaways: Prices Reflect Information

Prices Reflect Information

Prices reflect the aggregate expectations of market participants.

- Markets are extremely efficient in incorporating information
- Evidence from active managers performance suggest that the free interaction between buyers and sellers produce fair prices
- We can rely on market prices

Market Prices Contain Relevant Information Dimensional

<p>Prices Reflect Information</p> <p>Prices reflect the aggregate expectations of market participants.</p>	<p>Dimensions of Expected Returns</p> <p>Fairly priced securities can have different expected returns from one another.</p>	<p>Implementation Requires Expertise</p> <p>Efficiently capturing higher expected returns requires us to be informed consumers of price rationality.</p>
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Price Reflects Known Information Dimensional

Price

=

Book Equity

+

(Expected) Future Cash Flows

Discount rate

Prices incorporate all available information, but not all securities have the same expected return.

Which Has Higher Expected Returns? Dimensional

Of two companies with similar profitability

COMPANY	PROFITABILITY ¹	RELATIVE PRICE (P/BP) ²
A	0.43	3.33
B	0.43	6.09

✓

The one trading at a lower relative price has higher expected returns.

Hypothetical example for illustrative purposes only to demonstrate the application of the investment philosophy.

1. Profitability is a measure of a company's current profile. We define this as operating income before depreciation and amortization, minus interest expense, and then scaled by book equity.

2. Relative Price refers to the share price for market cap of a firm's stock, divided by a fundamental variable of the firm (e.g., example, cash earnings, dividends, net assets). One of the most widely used measures of relative price is the price/book ratio.

Which Has Higher Expected Returns?

Of two companies with similar relative prices

COMPANY	PROFITABILITY ¹	RELATIVE PRICE (P/B) ²
C	0.68	3.76
D	0.29	3.74

✓

The one with higher profitability has higher expected returns.

Hypothetical example for illustrative purposes only to demonstrate the application of the investment philosophy
 1. Profitability is a measure of a company's current profits. We define this as operating income before depreciation and amortization, minus interest expense, and then scaled by book equity.
 2. Relative Price refers to the share price for market cap of a firm's stock, divided by a fundamental metric of the firm (i.e., earnings, cash earnings, dividends, etc. asset). One of the most widely used measures of relative price is the price/book ratio.

Dimensions of Expected Equity Returns

Company Size	Relative Price ¹	Profitability ²
SMALL CAP PREMIUM small vs. large companies	VALUE PREMIUM value vs. growth companies	PROFITABILITY PREMIUM high vs. low profitability companies

To be considered a dimension of expected return, a premium must be: Sensible, Persistent, Pervasive, Robust, and Cost-effective

Dimensional does not eliminate the risk of market loss. 1. Relative price as measured by the price/book ratio, value stocks are those with lower price-to-book ratios. 2. Profitability is a measure of current profitability, based on information from individual companies' income statements.

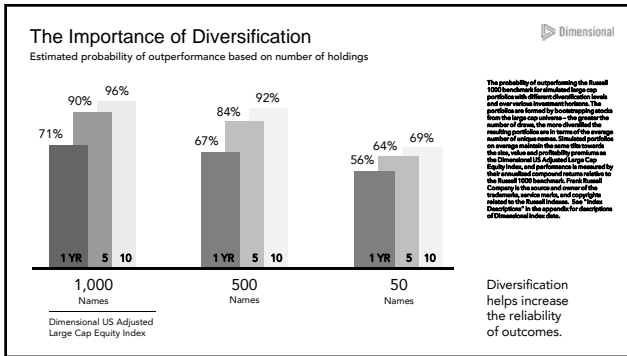
Dimensions of Expected Returns

Illustrative index performance: Annualized compound returns (%) in US dollars

Size	US Stocks	Developed ex-US Markets Stocks	Emerging Markets Stocks
Relative Price	SMALL LARGE	SMALL LARGE	SMALL LARGE
1928-2014	12.15 9.75	14.24 9.31	11.41 9.60
1928-2016	12.70 8.99	13.70 8.36	13.13 9.06
1964-2016	12.55 8.23	6.35 1.84	7.96 2.75

Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book equity. Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Past performance is not a guarantee of future results. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment. Actual returns may be lower. See "Index Descriptions" in the appendix for descriptions of Dimensional and Fama/French index data. Eugene Fama and Ken French are members of the Board of Directors for and provide consulting services to Dimensional Fund Advisors LP. The S&P data are provided by Standard & Poor's Index Services Group. MSCI data © MSCI 2017. All rights reserved.

Size, value, and profitability premiums have been pervasive across markets.



Key Takeaways: Dimensions of Expected Returns

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Dimensions of Expected Returns

Fairly priced securities can have different expected returns from one another.

- Market prices contain information about expected returns
- Information in prices can be used to increase expected returns
- Diversification and a long-term focus improve the chances of positive outcomes
- Dimensions can help increase expected returns

Market Prices Contain Relevant Information

Dimensional

Prices Reflect Information

Prices reflect the aggregate expectations of market participants. We can rely on market prices.

Dimensions of Expected Returns

Fairly priced securities can have different expected returns from one another.

Implementation Requires Expertise

Efficiently investing requires expertise and the information contained in security prices is noisy.

Robust Implementation Based on Sound Insights Dimensional

What have we learned?

We rely on market prices

There are differences in expected returns among securities.

The market presents a more complete view of the expected returns and risks of a security than any model.

Implementation: An Integrated Approach to Adding Value Dimensional

An investment process that relies on market prices, research insights, and efficient implementation.

Key Takeaways: Implementation Requires Expertise Dimensional

Implementation Requires Expertise

Efficiently capturing higher expected returns requires us to use the information contained in security prices rationally.

- Rely on market prices as they have more information than any "incomplete" model
- Use current prices on a daily basis to consistently focus on securities with higher expected returns
- Provide better expected outcomes by effectively managing the tradeoffs between expected returns, diversification, turnover and costs

Appendix: Index Descriptions



Dimensional International Low Profitability Index was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional International High Profitability Index was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets Low Profitability Index was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets High Profitability Index was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets Small Cap Index is compiled by Dimensional from Bloomberg securities data. The index is a market capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Excludes REITs and investment companies. The index has been retrospectively calculated by Dimensional and did not exist prior to April 2008. The calculation methodology for the Dimensional Emerging Markets Small Index was amended in January 2014 to include profitability as a factor in selecting securities for inclusion in the index. Prior to January 1994 Fama/French Emerging Markets Small Cap Index.

The Dimensional Indexes have been retrospectively calculated by Dimensional Fund Advisors LP and did not exist prior to their index inception date. Accordingly, results shown during the periods prior to each Index's index inception date do not represent actual returns of the respective Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and a not intended for investment purposes only to indicate historical performance had the Index been calculated over the relevant time periods. Backtested performance results assume the investment of dividends and capital gains.

Appendix: Index Descriptions



Fama/French US Value Index Provided by Fama/French from CRSP securities data. Includes the lower 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1978).

Fama/French US Growth Index Provided by Fama/French from CRSP securities data. Includes the higher 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1978).

Fama/French International Value Index 2008-present: Provided by Fama/French from Bloomberg securities data. Simulated strategy of MSCI EAFE + Canada countries in the lower 30% price-to-book range, 1975-2007. Provided by Fama/French from MSCI securities data.

Fama/French International Growth Index 2008-present: Provided by Fama/French from Bloomberg securities data. Simulated strategy of MSCI EAFE + Canada countries in the higher 30% price-to-book range, 1975-2007. Provided by Fama/French from MSCI securities data.

Fama/French Emerging Markets Value Index 2009-present: Provided by Fama/French from Bloomberg securities data. Simulated strategy using IFC investable universe countries. Companies in the lower 30% price-to-book range, companies weighted by float-adjusted market cap, countries weighted by country float-adjusted market cap, rebalanced monthly, 1989-2008. Provided by Fama/French from IFC securities data. IFC data provided by International Finance Corporation.

Fama/French Emerging Markets Growth Index 2009-present: Provided by Fama/French from Bloomberg securities data. Simulated strategy using IFC investable universe countries. Companies in the higher 30% price-to-book range, companies weighted by float-adjusted market cap, countries weighted by country float-adjusted market cap, rebalanced monthly, 1989-2008. Provided by Fama/French from IFC securities data. IFC data provided by International Finance Corporation.

Fama/French Total US Market Index Provided by Fama/French from CRSP securities data. Includes all US operating companies trading on the NYSE, AMEX or Nasdaq NSE. Excludes ADRs, Investment Companies, Tracking Stocks, non-US incorporated companies, Closed-end funds, Certificates, Shares of Beneficial Interests and Berkshire Hathaway Inc Parco 340.

Results shown during periods prior to each Index's index inception date do not represent actual returns of the respective Index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and a not intended for investment purposes only to indicate historical performance had the Index been calculated over the relevant time periods. Backtested performance results assume the investment of dividends and capital gains. Eugene Fama and Ken French are members of the Board of Directors for and provide consulting services to Dimensional Fund Advisors LP.

Data Appendix



US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago.

Equity fund sample includes the Morningstar historical categories: Diversified Emerging Markets, Europe Stock, Foreign Large Blend, Foreign Large Growth, Foreign Large Value, Foreign Small/Mid Blend, Foreign Small/Mid Growth, Foreign Small/Mid Value, Japan Stock, Large Blend, Large Growth, Large Value, Mid-Cap Blend, Mid-Cap Value, Miscellaneous Region, Pacific/Asia ex-Japan Stock, Small Blend, Small Growth, Small Value, and World Stock. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classification" at http://morningstardirect.morningstar.com/clientcomm/Morningstar_Category_US_April_2016.pdf.

Fixed income fund sample includes the Morningstar historical categories: Corporate Bond, Inflation-Protected Bond, Intermediate Government, Intermediate-Term Bond, Multi-Country Intermediate, Multi-National Intermediate, Multi National Short, Multi New York Intermediate, Multi Single State Short, Short Government, Short-Term Bond, UltraShort Bond, and World Bond. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classification" at http://morningstardirect.morningstar.com/clientcomm/Morningstar_Category_US_April_2016.pdf.

Index funds and fund-of-funds are excluded from the sample. Net assets for funds with multiple share classes or feeder funds are a sum of the individual share class total net assets. The return, expense ratio, and turnover for funds with multiple share classes are taken as the asset-weighted average of the individual share class observations. Fund share classes are aggregated at the strategy level using Morningstar FundID and CRSP portfolio number.

Each non-Dimensional fund is evaluated relative to the Morningstar benchmark assigned to the fund's category at the start of the evaluation period. Surviving funds are those with return observations for every month of the sample period. Winner funds are those that survived and whose cumulative net return over the period exceeded that of their respective Morningstar category benchmark. Loser funds are funds that did not survive the period or whose cumulative net return did not exceed their respective Morningstar category benchmark.

Benchmark data provided by Bloomberg Barclays, MSCI, Russell, Citigroup, and S&P. Bloomberg Barclays data provided by Bloomberg. MSCI data (MSCI 2017), all rights reserved. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell indexes. CSI fixed income indices ©2017 by Citigroup. The S&P data is provided by Standard & Poor's Index Services Group.

Benchmark indices are not available for direct investment. Their performance does not reflect the expenses associated with management of an actual portfolio.

Mutual fund investment outcomes will fluctuate, and shares, when redeemed, may be worth more or less than original cost. Diversification neither assures a profit nor guarantees against a loss in a declining market. There is no guarantee investment strategies will be successful.

Past performance is no guarantee of future results.