WISDOMTREE®

THE DIVIDENDS OF A QUALITY AND GROWTH FACTOR APPROACH

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In February 2015, Warren Buffett's annual shareholder letter for Berkshire Hathaway was released. There is one passage that—more than any other—reveals how Buffett thinks about attractive investment options. In addition to things like large size and having management in place, the following items are of note:

BERKSHIRE HATHAWAY INC. ACQUISITION CRITERIA[1]

+ **Demonstrated consistent earning power**
+ **Businesses earning good return on equity[2] while employing little or no debt**

The key phrase is "businesses earning good returns on equity while employing little or no debt."

WisdomTree offers a series of Indexes—our "Quality Dividend Growth" family—that employ this "Buffett factor" of return on equity (ROE) and return on assets (ROA)[3] as a driving force for stock selection. The reason WisdomTree included ROA in powering stock selection is that it penalizes the use of debt (leverage[4]) in delivering ROE; therefore, the resulting list of companies that qualify for our Indexes tend to also employ little debt.

GETTING DIVERSIFIED EXPOSURE THAT PASSES BUFFETT'S ROE RULE

Warren Buffett is always going to be a master stock picker, and he is able to get special acquisitions due to the terms he can offer. For the rest of us, getting diversified exposure to stocks that have those characteristics via an index-based strategy can be compelling. The WisdomTree Quality Dividend Growth Indexes are built with this framework in mind.

In this paper, we review the literature and proponents of quality investing before going into greater detail on WisdomTree's approach.

IDEA OF QUALITY INVESTING HAS A LONG HISTORY

While Buffett's record is certainly impressive, his teacher, Benjamin Graham, who is known as one of the fathers of value investing, also had a rigorous focus on quality traits. Many focus on Graham's criteria for finding inexpensive companies, but looking at his list of seven purchase criteria, he was at least equally focused on attributes of quality, if not more so.

[1] Source: Berkshire Hathaway annual letter to shareholders from Warren E. Buffett, 2/28/15.
[2] Return on equity (ROE): Measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.
[3] Return on assets (ROA): Firm profits (after accounting for all expenses) divided by the firm's total assets. Higher numbers indicate greater profits relative to the level of assets utilized to generate them.
[4] Leverage: Total assets divided by equity. Higher numbers indicate greater borrowing to finance asset purchases; leverage can tend to make positive performance more positive and negative performance more negative.

BENJAMIN GRAHAM'S ATTRIBUTES OF QUALITY[5]

- + "Adequate" enterprise size, as insulation against the "vicissitudes" of the economy
- + Strong financial condition, measured by current ratios[6] that exceed 2 and net current assets[7] that exceed long-term debt[8]
- + Earnings stability, measured by 10 consecutive years of positive earnings
- + A dividend record of uninterrupted payments for at least 20 years
- + Earnings-per-share growth of at least one-third over the last 10 years

A full five of the seven points could be said to focus more on quality than on valuation[9], with the final two points indicating that, given that these criteria were met, one should not see either a price-to-earnings (P/E) ratio[10] or price-to-book[11] (P/B) ratio too high in order to access them.

GRANTHAM'S ATTRIBUTES OF QUALITY

One of the long-standing investment practitioners of quality investing has been Jeremy Grantham's firm, GMO. In a paper written in 2004,[12] GMO wrote of quality firms:

> ...even though many of these corporations tend to generate high profits year after year, they are systematically underpriced because they lack volatility[13]. Instead of overpaying for these companies, as finance theory would suggest—given their low risk profile—shareholders in fact do just the opposite: they underpay. The result is that investors in high-quality companies get to forge ahead with 15+% returns year after year without overpaying. Of course, in any given year, low-quality stocks can and do stage rallies and high-quality stocks can underperform. But the high-quality stocks have always won over longer holding periods. No matter what metric is used to identify quality stocks—leverage, profitability, earnings volatility or beta[14]—high-quality stocks have beaten out low-quality stocks.

[5] Source: Benjamin Graham, "The Intelligent Investor" (4th revised edition), Harper & Row, 1973.
[6] Current ratio: Measures whether or not a firm has enough resources to pay its debts over the next 12 months, with higher values indicating a greater potential for future debt payment capability.
[7] Net current assets: Also known as working capital, helps to gauge a company's short-term financial health by measuring liquid assets, like cash and short-term investments, against liabilities coming due over the next 12 months.
[8] Long-term debt: Debt with maturity greater than one year.
[9] Valuation: Refers to metrics that relate financial statistics for equities to their price levels to determine if certain attributes, such as earnings or dividends, are cheap or expensive.
[10] Price-to-earnings (P/E) ratio: Share price divided by earnings per share. Lower numbers indicate an ability to access greater amounts of earnings per dollar invested.
[11] Price-to-book ratio: Share price divided by book value per share. Lower numbers indicate an ability to access greater amounts of earnings per dollar invested.
[12] "The Case for Quality—The Danger of Junk," GMO white paper, 3/04.
[13] Volatility: A measure of the dispersion of actual returns around a particular average level.
[14] Beta: Measure of the volatility of an index or investment relative to a benchmark. A reading of 1.00 indicates that the investment has moved in lockstep with the benchmark; a reading of -1.00 indicates that the investment has moved in the exact opposite direction of the benchmark.

More recent academic research has also supported these practitioner ideas. Robert Novy-Marx wrote "The Other Side of Value: The Gross Profitability Premium" in June 2012. In that paper, he wrote:[15]

> Profitability, as measured by the ratio of a firm's gross profits (revenues minus cost of goods sold[16]) to its assets, has roughly the same power as book-to-market predicting the cross-section of average returns. …
>
> Strategies based on gross profitability generate value-like average excess returns, even though they are growth strategies that provide an excellent hedge for value. The two strategies share much in common philosophically, however, despite being highly dissimilar in both characteristics and covariances[17]. …
>
> Because the value and profitability strategies' returns are negatively correlated, the two strategies work extremely well together. In fact, a value investor can capture the full profitability premium without taking on any additional risk.

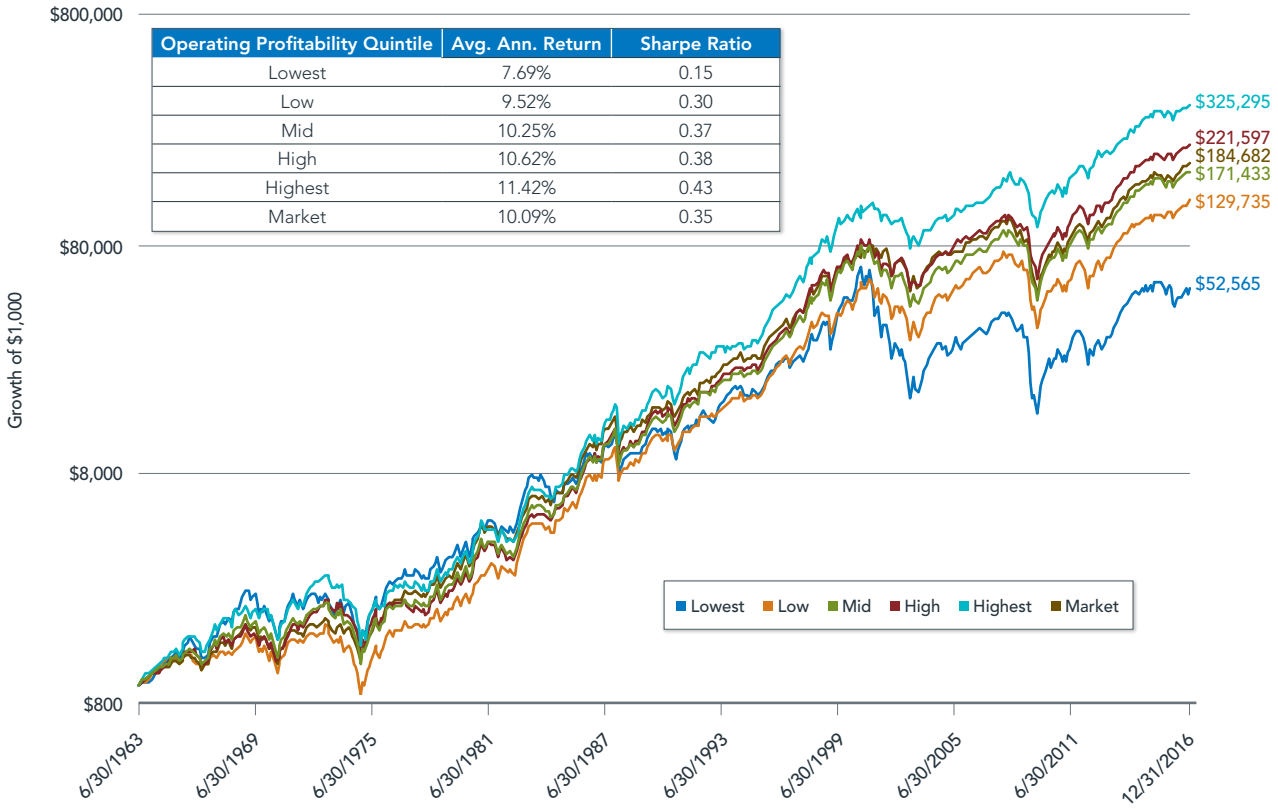
FAMA-FRENCH OPERATING PROFITABILITY FACTOR

Research done by Kenneth French and Eugene Fama arrives at a similar place. In their draft of "A Five-Factor Asset Pricing Model" from September 2014, they cite operating profitability, defined as annual revenues minus cost of goods sold, interest expense[18] and SG&A[19], all divided by book value of equity[20]. Note, this is similar to Buffett's criteria in the opening of the piece: a company earning a good return (profits) on its equity (book value)—in other words, a high ROE.

Arranging the U.S. market into quintiles based on operating profitability further emphasizes that high-quality stocks have won over longer holding periods.

[15] Robert Novy-Marx, "The Other Side of Value: The Gross Profitability Premium," 6/12.
[16] Cost of goods sold: This amount includes the cost of the materials used in creating the good along with the direct labor costs used to produce the good.
[17] Covariance: Measure of how two or more variables move in relation to one another, with positive values indicating general movement in a similar direction and negative values indicating general movement in an opposite direction.
[18] Interest expense: Expense incurred due to taking on debt.
[19] SG&A: Specifically, selling, general and administrative expenses; in other words, the costs related to running a company's day-to-day operation.
[20] Book equity: The value of shareholders' equity reported on the balance sheet of a firm.

FIGURE 1: HIGHER OPERATING PROFITABILITY HAS OUTPACED LOWER OPERATING PROFITABILITY



Operating Profitability Quintile	Avg. Ann. Return	Sharpe Ratio
Lowest	7.69%	0.15
Low	9.52%	0.30
Mid	10.25%	0.37
High	10.62%	0.38
Highest	11.42%	0.43
Market	10.09%	0.35

Source: Kenneth French Data Library, with data as of 12/31/2016. Period based on availability of operating profitability returns sorted into quintiles, which begins 6/30/1963. Past performance is not indicative of future results. You cannot invest directly in an index.

+ The market delivered 10.09% average annual returns, leading to a Sharpe ratio of 0.35. Three quintiles beat this figure—the two highest and mid—and they won on the basis of both average annual return and Sharpe ratio.

HOW ARE RETURNS BEING ACHIEVED?

One important aspect of the outperformance of the highest quintile based on operating profitability is how this quintile is not all driven by its sensitivity to the "value" factor. We use the original Fama-French three-factor model to show the factor loading to the value factor.

The highest-quality basket actually had a negative loading on the value factor—which suggests it was more of a growth portfolio and also was a headwind, given that value strategies outperformed growth over this period.

FIGURE 2: PUTTING OPERATING PROFITABILITY & BOOK TO MARKET THROUGH THE THREE-FACTOR MODEL [6/30/1963 – 12/31/2016]

Portfolios Formed on Operating Profit						
	Market Factor[1]	Size Factor[2]	Value Factor[3]	Total Return	Standard Deviation	Sharpe Ratio
Highest Quintile	0.971	-0.132	-0.123	6.32%	15.36%	0.10
High Quintile	0.995	-0.087	-0.009	5.55%	15.33%	0.05
Medium Quintile	0.977	-0.075	0.145	5.20%	14.92%	0.03
Low Quintile	0.999	0.075	0.181	4.50%	15.70%	-0.02
Lowest Quintile	1.132	0.332	0.051	2.74%	19.54%	-0.11

Portfolios Formed on Book to Market						
	Market Factor[1]	Size Factor[2]	Value Factor[3]	Total Return	Standard Deviation	Sharpe Ratio
Highest Quintile	1.103	0.279	0.795	9.20%	18.10%	0.24
High Quintile	1.001	0.047	0.593	6.91%	15.54%	0.14
Medium Quintile	0.963	-0.059	0.333	6.18%	14.88%	0.09
Low Quintile	1.005	-0.037	0.103	5.42%	15.63%	0.04
Lowest Quintile	0.996	-0.098	-0.378	4.22%	16.57%	-0.04

[1] Market Factor: Component of the Fama-French three-factor model meant to denote sensitivity to the movements of the broad equity market. Values above 1.0 indicate a greater degree of sensitivity; values below 1.0 indicate a lesser degree of sensitivity.
[2] Size Factor: Component of the Fama-French three-factor model meant to denote size exposure, with higher values indicating greater exposure to the returns of small stocks and lower, especially negative, values indicating greater exposure to the returns of large stocks.
[3] Value Factor: Component of the Fama-French three-factor model meant to denote exposure to value or growth stocks; greater positive values indicate greater exposure to the returns of value stocks, and lower negative values indicate greater exposure to the returns of growth stocks.
Source: Kenneth French Data Library, with data as of 12/31/2016. Period based on availability of operating profitability returns sorted into quintiles, which begins 6/30/1963. Past performance is not indicative of future results. You cannot invest directly in an index.

+ **Top Quintile Outperformance:** In both cases, the highest quintile delivered strong performance. While the book-to-market option did deliver the stronger performance, it came with higher risk. Why? Well, first the market factor loading was 1.10, indicating the potential for greater-than-market volatility. The size factor loading was 0.28, leading us to see a tilt toward mid- and small-cap companies. The operating profitability option had a market factor loading below 1.0 and a size factor loading of -0.13, meaning below-market volatility AND exposure predominantly to large-cap firms.

Our point is not necessarily to say that focusing on operating profitability is better or worse than focusing on book to market—each has potentially positive attributes. Given the outperformance of both, understanding the tilts resulting from achieving each respective focus and how they can complement each other is of prime importance.

In Figure 3, we examine how the top 30% of firms by book to market value compared to the top 30% of firms by operating profitability.

FIGURE 3: FAMA AND FRENCH'S USA QUALITY, VALUE AND BROAD MARKET UNIVERSES

[6/30/1963–12/31/2016]

		Avg. Ann. Return	Avg. Ann. Std. Dev.	Sharpe Ratio	Maximum Drawdown	Information Ratio	Up Capture	Down Capture	Alpha	Beta	Correlation
3-Year	Top 30% By Operating Profitability	8.00%	11.32%	0.70	-9.14%	-0.09	93.81%	93.84%	-0.08%	0.98	0.97
	Top 30% By Book to Market	8.99%	14.57%	0.61	-16.85%	0.10	124.91%	124.62%	-0.04%	1.13	0.87
	Market	8.26%	11.17%	0.73	-9.08%	0.00	100.00%	100.00%	0.00%	1.00	1.00
5-Year	Top 30% By Operating Profitability	13.41%	10.70%	1.25	-9.14%	-0.57	91.51%	95.83%	-0.76%	0.97	0.97
	Top 30% By Book to Market	18.45%	13.97%	1.32	-16.85%	0.55	127.90%	119.19%	1.43%	1.15	0.89
	Market	14.81%	10.80%	1.37	-9.08%	0.00	100.00%	100.00%	0.00%	1.00	1.00
10-Year	Top 30% By Operating Profitability	8.70%	14.25%	0.56	-41.35%	0.46	93.17%	87.48%	1.99%	0.89	0.98
	Top 30% By Book to Market	5.55%	21.05%	0.23	-61.77%	-0.20	121.20%	123.90%	-2.59%	1.24	0.93
	Market	7.29%	15.66%	0.42	-50.39%	0.00	100.00%	100.00%	0.00%	1.00	1.00
20-Year	Top 30% By Operating Profitability	9.41%	14.29%	0.51	-41.35%	0.37	91.15%	85.35%	2.25%	0.88	0.97
	Top 30% By Book to Market	9.72%	18.49%	0.41	-61.77%	0.20	109.89%	101.72%	1.92%	1.03	0.88
	Market	7.93%	15.77%	0.37	-50.39%	0.00	100.00%	100.00%	0.00%	1.00	1.00
30-Year	Top 30% By Operating Profitability	11.81%	14.65%	0.59	-41.35%	0.47	96.93%	89.09%	2.21%	0.93	0.97
	Top 30% By Book to Market	11.72%	17.09%	0.50	-61.77%	0.20	106.36%	99.57%	1.89%	0.99	0.89
	Market	10.14%	15.36%	0.45	-50.39%	0.00	100.00%	100.00%	0.00%	1.00	1.00
Full Period	Top 30% By Operating Profitability	11.35%	15.14%	0.43	-48.06%	0.37	99.64%	93.82%	1.50%	0.97	0.97
	Top 30% By Book to Market	13.67%	16.78%	0.53	-61.77%	0.47	109.85%	94.03%	3.75%	0.98	0.89
	Market	10.09%	15.28%	0.35	-50.39%	0.00	100.00%	100.00%	0.00%	1.00	1.00

Sources: Kenneth French Data Library, Zephyr StyleADVISOR. Period based on data availability of the Fama-French models, which begin 6/30/1963. Referred to as "full period," which is 6/30/1963–12/31/2016. Past performance is not indicative of future results. You cannot invest directly in an index.

+ **Outperformance of Quality:** Quality, represented by the top 30% of firms by operating profitability, outperformed Value, represented as the top 30% of firms by book to market value, over the 10- and 30-year periods of available data shown. In each case, this was achieved while also maintaining a higher Sharpe ratio.
+ **Correlation[21] and Beta:** Quality had a higher correlation to the USA broad market as did Value. We found it interesting, however, that this was achieved while having a significantly lower beta measured against the broad market across all time periods.

We also wanted to utilize the three-factor model again. It was notable that over the full period, from June 30, 1963, to December 31, 2016, both Quality and Value outperformed the US broad market. How was this achieved? We wanted to indicate what, if any factor tilts were evident over this period.

[21] Correlation: Statistical measure of how two sets of returns move in relation to each other. Correlation coefficients range from -1 to 1. A correlation of 1 means the two subjects of analysis have moved in lockstep with each other. A correlation of -1 means the two subjects of analysis have moved in exactly opposite directions.

FIGURE 4: EXAMINING THE FACTOR LOADINGS OF THE FAMA FRENCH THREE-FACTOR MODEL

[6/30/1963–12/31/2016]

	Fama & French USA Tilts (Top 30%)					
	Market Factor[1]	Size Factor[2]	Value Factor[3]	Total Return	Standard Deviation	Sharpe Ratio
Quality[4]	0.971	-0.121	-0.090	11.35%	15.14%	0.43
Value[5]	1.052	0.213	0.744	13.67%	16.78%	0.53
Market	0.996	-0.002	0.004	10.09%	15.28%	0.35

[1] Market Factor: Component of the Fama-French three-factor model meant to denote sensitivity to the movements of the broad equity market. Values above 1.0 indicate a greater degree of sensitivity; values below 1.0 indicate a lesser degree of sensitivity.
[2] Size Factor: Component of the Fama-French three-factor model meant to denote size exposure, with higher values indicating greater exposure to the returns of small stocks and lower, especially negative, values indicating greater exposure to the returns of large stocks.
[3] Value Factor: Component of the Fama-French three-factor model meant to denote exposure to value or growth stocks; greater positive values indicate greater exposure to the returns of value stocks, and lower negative values indicate greater exposure to the returns of growth stocks.
[4] Quality: Top 30% of firms by Operating Profitability
[5] Value: Top 30% of firms by Book to Market Value
Sources: Kenneth French Data Library, Zephyr StyleADVISOR. Past performance is not indicative of future results. You cannot invest directly in an index.

+ **Quality:** Quality had a market factor loading below 1.0 (just as we saw with operating profitability earlier), as well as a distinct loading toward the larger size segment, indicated by the negative size factor loading of -0.12. This was accomplished with a negative factor loading of -0.09 to value (in other words, tilting toward growth).
+ **Value:** As expected, the Value loads significantly to the Fama-French value factor, with a positive 0.74. Similar to what we saw earlier in terms of the portfolios sorted by book to market, it didn't necessarily lower the market factor loading like we saw in the analysis of quality.

MARRYING QUALITY & VALUE

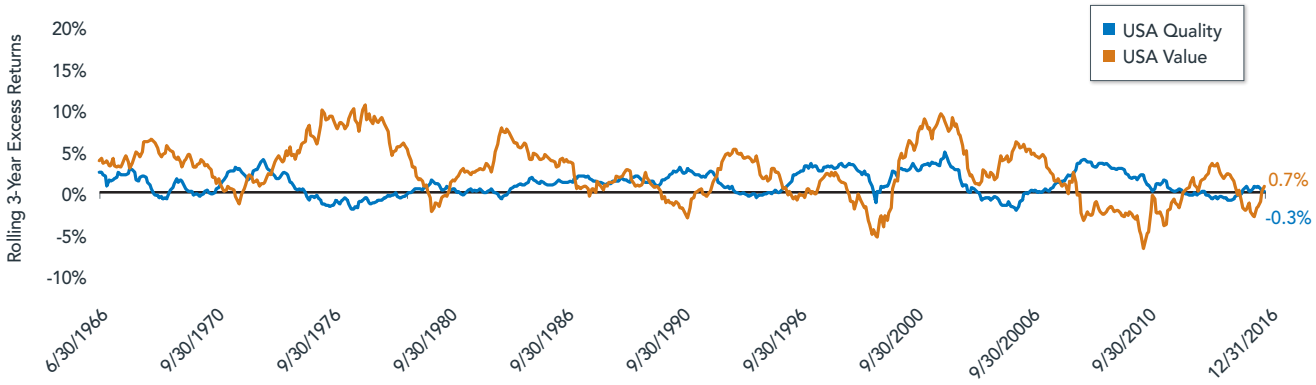
Clearly the focus in value strategies is on how price relates to fundamentals such as dividends, earnings or book value. Quality factors focus on the inherent stability of the fundamentals themselves. These make them interesting complements. Novy-Marx wrote:[22]

> Because strategies based on profitability are growth strategies, they provide an excellent hedge for value strategies, and thus dramatically improve a value investor's investment opportunity set. In fact, the profitability strategy, despite generating significant returns on its own, actually provides insurance for value.

We tested this premise using the top 30% of firms by operating profitability and the top 30% of firms by book to market. To function with an "insurance" characteristic, you wouldn't want the Quality and Value outperforming or underperforming at the same time.

[22] Robert Novy-Marx, "The Other Side of Value: The Gross Profitability Premium," 6/12.

FIGURE 5: USA QUALITY VS. USA VALUE—EXCESS RETURNS AGAINST THE USA MARKET [Rolling 3-Year]



Sources: Kenneth French Data Library, Zephyr StyleADVISOR, with data from 6/30/1963 to 12/31/2016. Past performance is not indicative of future results. You cannot invest directly in an index.

+ **Excess Returns Appear to Offset:** When the the top 30% firms by operating profitability were outperforming the US broad market, the top 30% firms by book to market value were underperforming it—and with a similar degree of magnitude. The potential that Novy-Marx cited appears very well intact.

We also wanted to further test another statement made by Novy-Marx cited earlier in this paper, namely, "Adding a profitability strategy on top of an existing value strategy actually reduces overall portfolio volatility …"

This is an important point because one of the most focused-upon categories in investment management is "large-cap value." Complementarity of quality strategies to value strategies could therefore lead to very broad appeal and usability.

Within figure 6, the Value & Quality Blend refers to a 50% allocation to the Quality, represented by the top 30% firms by operating profitability, and a 50% allocation to Value, which reflects the top 30% of firms by book to market value.

FIGURE 6: DOES A 50-50 BLEND OF QUALITY & VALUE IMPROVE THE SHARPE RATIO RELATIVE TO VALUE ALONE? [6/30/1963–12/31/2016]

Rolling Periods	Percentage of Periods Where USA Value Outperformed USA Market	Percentage of Periods Where Value and Quality Blend Outperformed USA Market	Total Number of Periods	Median Excess Return of USA Value and Quality Blend vs. USA Market	Trailing Periods	Value and Quality Blend Information Ratio vs. USA Market	USA Value Information Ratio vs. USA Market
3-Year	74.79%	86.66%	607	2.20%	3-Year	0.09	0.10
5-Year	78.73%	87.31%	583	2.37%	5-Year	0.50	0.55
7-Year	81.40%	91.41%	559	2.76%	7-Year	-0.06	-0.03
10-Year	87.19%	96.75%	523	2.96%	10-Year	-0.17	-0.20
15-Year	95.90%	100.00%	463	2.72%	15-Year	0.06	0.03
20-Year	100.00%	100.00%	403	2.63%	20-Year	0.26	0.20
25-Year	100.00%	100.00%	343	2.74%	25-Year	0.35	0.29
30-Year	100.00%	100.00%	283	2.66%	30-Year	0.28	0.20

Source: Kenneth French Data Library. Period based on data availability for Fama-French models, 6/30/1963– 12/31/2016. Past performance is not indicative of future results. You cannot invest directly in an index.

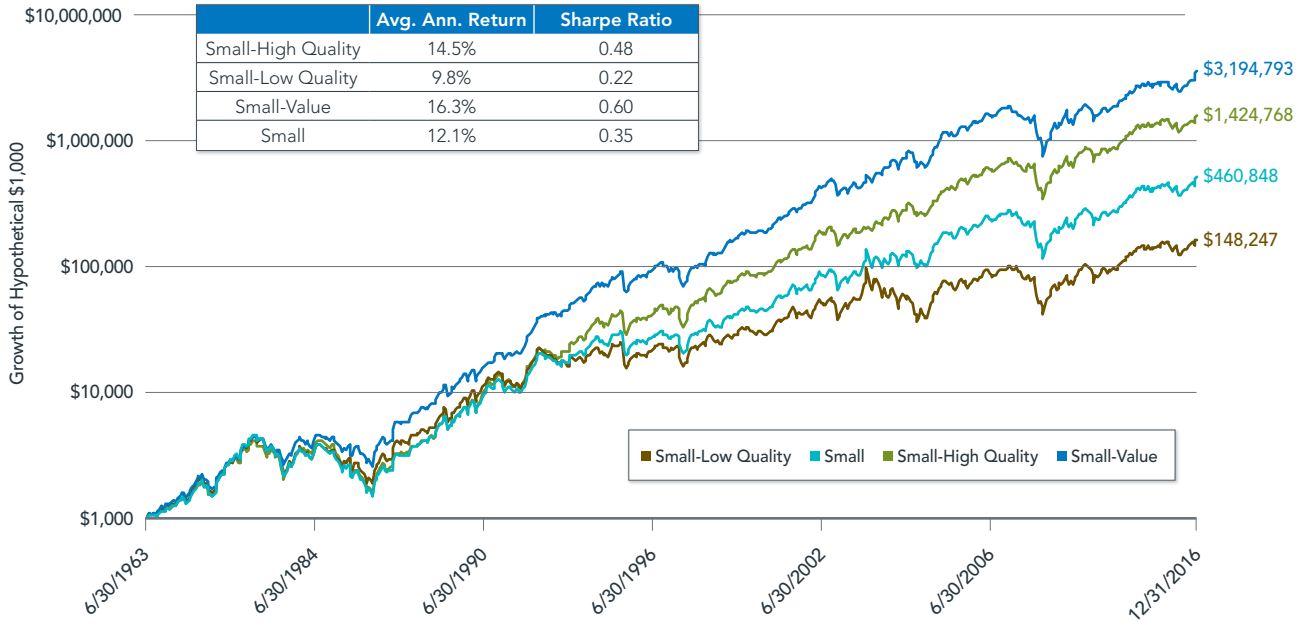
+ **Excess Returns:** This is the first question, and we see that the percentage of rolling periods that the Value & Quality Blend outperformed the US market was higher than it was for just Value.
+ **Behavior of Excess Returns:** This is the second question, and we look to the median excess return of the Value & Quality Blend versus the US market. For each of the rolling intervals beyond three years, we see that the median excess return was between 2.20% on the low end and 2.96% on the high end.
+ **Information Ratio:** The final question is to note if the Value & Quality Blend was indicating an improved information ratio relative to the US market. As the length of the rolling periods increased, the information ratio increased. Compared to Value, the blended approach of Quality & Value tended to be higher. The route to a higher information ratio would have to be either a decrease in the volatility of excess returns measured against a benchmark or an increase of those excess returns—both of which could be viewed as desirable.

FINDING QUALITY WITHIN SMALL-CAP STOCKS

When focusing on the concept of quality, the first stop tends to be large-cap multinational firms, but small caps can also be of potential interest. Cliff Asness and his colleagues at AQR have explored this topic, writing the very memorably titled "Size Matters, If You Control Your Junk" in January 2015. Eugene Fama and Kenneth French have published different size sorts of their data on operating profitability.

When people familiar with different investment factor premia hear the names Fama and French, a common thought immediately jumps to mind: the small-cap value premium. We show that there also should be a focus on the "small-cap quality" premium.

FIGURE 7: SMALL HIGH QUALITY SIMILAR TO SMALL VALUE [6/30/1963–12/31/2016]



	Avg. Ann. Return	Sharpe Ratio
Small-High Quality	14.5%	0.48
Small-Low Quality	9.8%	0.22
Small-Value	16.3%	0.60
Small	12.1%	0.35

Source: Kenneth French Data Library. Period selected due to data availability for the Fama-French models. Past performance is not indicative of future results. You cannot invest directly in an index.

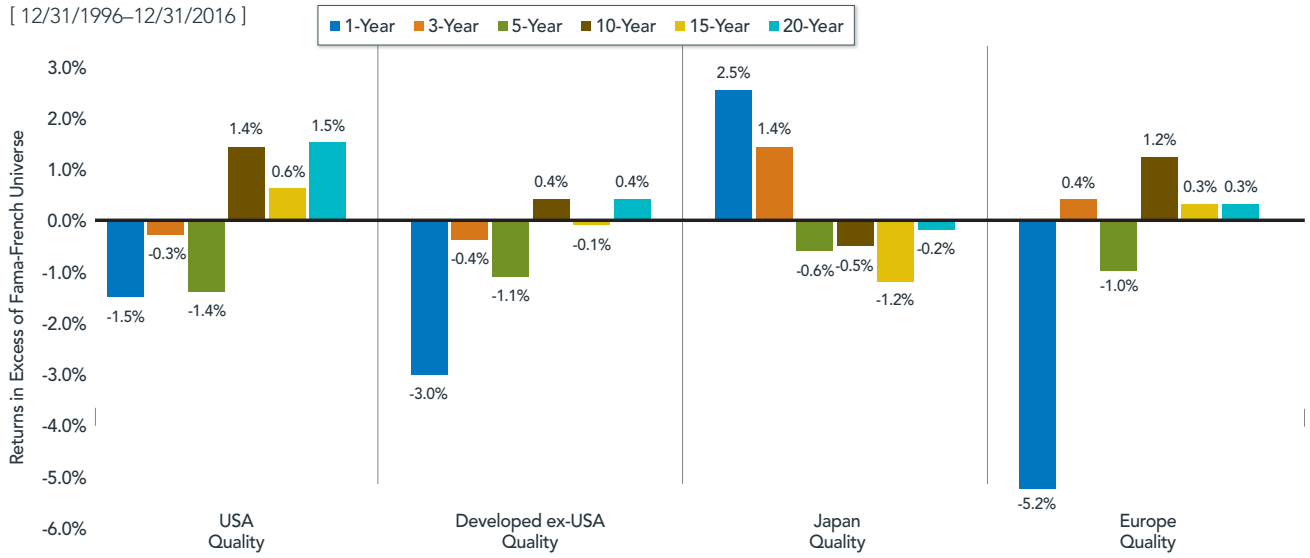
+ Value or Quality? Over this period, both outperformed a grouping of broad-based small caps. During other periods, it is most likely that the two would ebb and flow in and out of favor, with neither out- or underperforming all the time. As we discussed with the large caps, the idea of blending small value and small quality could be of potential interest.

EXPLORING QUALITY BEYOND U.S. BORDERS

Next, we show a similar analysis outside the United States using both simple excess return differentials and Sharpe ratios to illustrate risk-adjusted return differentials.

FIGURE 8: AVERAGE ANNUAL RETURNS IN EXCESS OF THE FAMA-FRENCH UNIVERSES

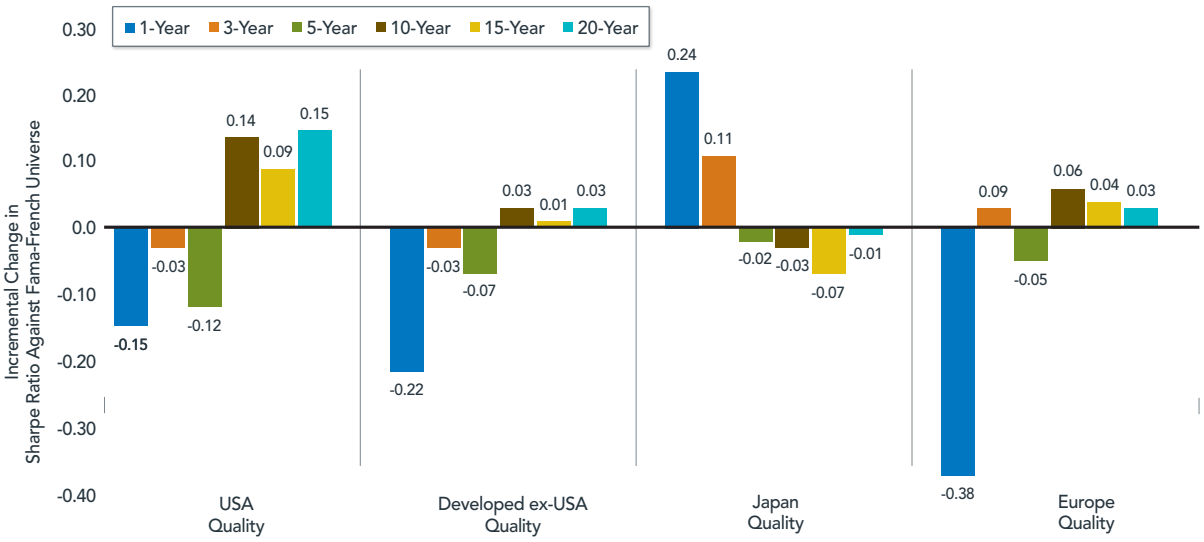
[12/31/1996–12/31/2016]



Source: Kenneth French Data Library. Large cap stocks within the top 90% of the market capitalization of the respective regional universe were used. For the measure of operating profitability, stocks within the top 30% of the universe were used. The universe refers to publicly listed equities in the respective region that have appropriate fundamental data availability such that operating profitability can be measured across time. Past performance is not indicative of future results. You cannot invest directly in an index.

+ The relatively higher operating profitability groups of stocks mostly outperformed their benchmark universes which included all listed equities during the time periods for the 4 markets.

FIGURE 9: SHARPE RATIOS IN EXCESS OF THE FAMA-FRENCH UNIVERSES [12/31/1996–12/31/2016]



Source: Kenneth French Data Library. Large cap stocks within the top 90% of the market capitalization of the respective regional universe were used. For the measure of operating profitability, stocks within the top 30% of the universe were used. The universe refers to publicly listed equities in the respective region that have appropriate fundamental data availability such that operating profitability can be measured across time. Past performance is not indicative of future results. You cannot invest directly in an index.

WISDOMTREE'S QUALITY FOOTPRINT: METHODOLOGY & RATIONALE

One of the keys, in our opinion, is to not dilute the potential power of what others have mentioned above by trying to apply too many stock selection rules or complex weighting schemes. The key is to be as simple and broad-based as possible, while still tilting toward companies with low debt and high return on equity, which we believe to be an important common thread across the many varied interpretations of what quality means to different practitioners.

CRITICAL SELECTION CRITERIA AND RATIONALE FOR WISDOMTREE'S QUALITY DIVIDEND GROWTH INDEXES

The following general principles are used in creating these Indexes:

+ **Companies Must Have Dividend Coverage Ratio[23] Greater than 1.0x:** Companies that are paying out more dividends than they have earnings are less likely, we believe, to be dividend growth leaders.
+ The Indexes comprise the companies with the best combined rank of **growth and quality** factors from this universe.
  - **Growth Ranking 50%:** Derived from analysts' long-term earnings growth expectations, which ultimately encompass the estimated growth in operating earnings per share over the company's next full business cycle, typically three to five years.
  - **Quality Ranking 50%:** Split evenly between three-year average return on assets (ROA) and three-year average return on equity (ROE).

Weighting: The Indexes are *Dividend Stream*®[24] -weighted to reflect the proportionate share of the aggregate cash dividends. This gives bigger weight to companies growing their dividends, as well as having the potential to raise the trailing 12-month dividend yield of the total portfolio. This *Dividend Stream* weighting methodology also brings a value tilt to the quality and growth selection.[25]

THOUGHTS ON THE SELECTION FACTORS

We believe the combined ranking of earnings growth and quality factors identifies stocks with the highest potential to increase dividends.

On Earnings Growth Expectations: We believe companies that can grow their earnings have the greatest potential to raise their dividends, which is why long-term earnings growth expectations as a factor make up 50% of our selection criteria. Just to note other index providers that also look at earnings growth expectations as part of their classification of growth companies: The Russell family of Indexes includes a similar forecast medium-term growth expectations variable in its model to determine whether constituent stocks qualify as part of the Russell growth Indexes or Russell value Indexes.[26] We certainly recognize that these are only estimates and that, with an increasing time horizon, it becomes more and more difficult for estimates such as these to be accurate. However, while the specific growth estimates per company may be hard to pin down, in general the relative direction and trends tend to be more accurate.

[23] Dividend coverage ratio: Earnings per share divided by dividends per share. Higher numbers indicate a firm has a greater amount of earnings per share relative to its dividend payments.
[24] *Dividend Stream*: refers to the regular dividends per share multiplied by the number of shares outstanding.
[25] Both individual stock and sectors caps are put in place to restrict top holdings or undue sector concentration.
[26] "Russell U.S. Equity Indexes Construction and Methodology v 2.1," FTSE/Russell Indexes, 4/16.

On Quality Factor Rankings: Analysis of "quality" factors can take different forms. In our case, we have identified higher-quality companies as those that have displayed above-average historical returns on equity and on assets. We have used these criteria as part of our selection methodology, because we believe companies with better profitability metrics are better able to fund growing dividends.

We are certainly not the first to suggest there is a link between dividend growth and ROE[27] or to use ROE as a stock selection criterion.

ROE: THE BUFFETT FACTOR

There are also the investment practitioners who focus on ROE. Warren Buffett often says, as he did in his annual letter to shareholders that was published in February of 2015[28], that he looks for "businesses earning good returns on equity while employing little or no debt." Since high leverage involves the use of debt, our use of a quality ranking that incorporates both return on equity and return on assets enables us to mitigate the use of leverage as a sole driver of what may superficially appear to be a high ROE figure. The following quote from Charlie Munger at USC Business School in 1994 nicely summarizes why Buffett likes ROE as a factor:

> We've really made the money out of high quality businesses. . . . If the business earns 6% on capital over 40 years and you hold it for that 40 years, you're not going to make much different than a 6% return—even if you originally buy it at a huge discount. Conversely, if a business earns 18% on capital over 20 or 30 years, even if you pay an expensive looking price, you'll end up with a fine result.

MEASURING THE TILT TOWARD QUALITY COMPANIES

To quantify the tilt toward quality, we use each of the market capitalization-weighted benchmarks as baselines to determine three-year average ROE quartiles and show the exposure of various indexes in each quartile.

[27] ROE is tied to dividend growth in the dividend discount model described below.
[28] Source: Berkshire Hathaway annual letter to shareholders from Warren E. Buffett, published 2/28/15.

FIGURE 10: THE TYPICAL WISDOMTREE QUALITY DIVIDEND GROWTH INDEX (OUTSIDE OF JAPAN) HAS APPROXIMATELY TWICE THE WEIGHT (OR MORE) IN THE TOP QUARTILE

Thematic Focus	Index	Top Quartile	2nd Quartile	3rd Quartile	Bottom Quartile	No Value
United States Large Cap		Above 23.6%	Between 14.7% & 23.6%	Between 8.7% & 14.7%	Below 8.7%	No 3-Year Avg ROE
	WisdomTree U.S. Quality Dividend Growth	50.8%	38.1%	10.4%	0.8%	0.0%
	S&P 500	27.1%	23.5%	26.9%	19.7%	2.8%
United States Small Cap		Above 12.9%	Between 6.9% & 12.9%	Between 0% & 6.9%	Below 0%	No 3-Year Avg ROE
	WisdomTree U.S. SmallCap Quality Dividend Growth	62.6%	31.6%	5.7%	0.0%	0.0%
	CRSP U.S. Small Cap	31.4%	27.2%	17.8%	17.3%	6.4%
Developed Int. Large Cap		Above 16.3%	Between 10.1% & 16.3%	Between 6.3% & 10.1%	Below 6.3%	No 3-Year Avg ROE
	WisdomTree International Hedged Quality Dividend Growth	83.4%	16.2%	0.4%	0.0%	0.0%
	MSCI EAFE	33.2%	23.9%	22.0%	18.3%	2.6%
Emerging Markets Large Cap		Above 19.8%	Between 13.2% & 19.8%	Between 8.1% & 13.2%	Below 8.1%	No 3-Year Avg ROE
	WisdomTree Emerging Markets Quality Dividend Growth	77.6%	21.3%	1.0%	0.0%	0.0%
	MSCI Emerging Markets	28.1%	26.6%	22.6%	14.6%	8.1%
Europe Large Cap		Above 19.1%	Between 12.6% & 19.1%	Between 6.8% & 12.6%	Below 6.8%	No 3-Year Avg ROE
	WisdomTree Europe Quality Dividend Growth	61.0%	26.4%	11.8%	0.9%	0.0%
	MSCI Europe	26.7%	26.9%	20.9%	23.0%	2.6%
Japan Large Cap		Above 11.5%	Between 8.4% & 11.5%	Between 5.4% & 8.4%	Below 5.4%	No 3-Year Avg ROE
	WisdomTree Japan Quality Dividend Growth	41.4%	33.4%	23.3%	1.8%	0.0%
	MSCI Japan	32.6%	22.6%	24.8%	18.7%	1.3%
Global ex-U.S. Large Cap		Above 18.0%	Between 11.5% & 18.0%	Between 6.8% & 11.5%	Below 6.8%	No 3-Year Avg ROE
	WisdomTree Global ex-US Quality Dividend Growth	87.4%	12.5%	0.1%	0.0%	0.0%
	MSCI ACWI ex-US	27.8%	27.2%	21.1%	20.1%	3.8%

Source: Bloomberg. Each regional Index is measured as of the most recent WisdomTree index screening date: For United States large cap and small cap: 11/30/16. For developed international large cap, Europe large cap and Japan large cap: 5/31/16. For emerging markets large cap and global ex-U.S. large cap: 9/30/16. Past performance is not indicative of future results. You cannot invest directly in an index.

+ **How Japan is Different:** Japan is undergoing somewhat of an ROE renaissance, with companies becoming much more directly focused on improving shareholder returns. However, the need for this renaissance was brought on by the fact that Japanese equities—compared to other global equity markets—tend to have very low ROE. The WT Quality Dividend Growth methodology does tilt toward higher-ROE firms, but the tilt is simply not as pronounced as it is in some of the other regions.

SECTOR EXPOSURES TILT AWAY FROM FINANCIALS AROUND THE WORLD

In applying WisdomTree's Quality Dividend Growth methodology around the world, the focus on "low leverage" led to another very interesting observation. After the global financial crisis of 2008–09, the words "financials" and "leverage" became closely intertwined. Even though the picture has improved from the crisis levels, WisdomTree's Quality Dividend Growth approach still exhibits a bias away from the sector. In the U.S., which has tended to deleverage significantly since the crisis, the bias only shows up as an 12% to 16% under-weight. In the developed international, and Europe-focused versions, this bias becomes nearly 20% under-weight.

RETURN ON EQUITY: THE CRITICAL LINK CONNECTING QUALITY TO DIVIDEND GROWTH POTENTIAL

In the finance literature, return on equity is critically linked to dividend growth and intrinsic value[29] of companies through the dividend discount model (DDM).[30] The DDM for stock valuation states:

The value of a stock = DPS (1) / (R-G)

Where:

+ **DPS (1) = Dividends per share expected to be received in one year**
+ **R = The required rate of return for the investment**
+ **G = Growth rate in dividends = ROE x earnings retention (or 1 minus dividend payout ratio)[31]**

The growth rate equals the return on equity times the reinvestment rate; simply stated, the growth of dividends is determined by what fraction of earnings is put back into the firm and how profitable those earnings are in their subsequent use. A sustainable dividend growth rate is thus critically linked in finance theory to ROE.

HOW IMPORTANT IS DIVIDEND GROWTH TO TOTAL RETURNS?

From December 31, 1957, to December 31, 2016, the S&P 500 Index has generated average annual dividend growth of 5.6%. Over the past 10 years, this figure has been closer to 6.27%, meaning that dividend growth has been a more important driver of total returns recently.

[29] Intrinsic value: Value of a firm based on its operations, business practices and profitability, which may or may not be closely related to the value of that same firm based on its equity share price.
[30] William L. Silber and Jessica Wachter, "Equity Valuation Formulas," New York University, 2013.
[31] Earnings retention (or 1 minus dividend payout ratio): The dividend payout ratio is the dividend per share divided by the earnings per share. Since the earnings retention plus the dividend payout ratio must be added together to equal 100% of the earnings, 1 minus dividend payout ratio = earnings retention, the percentage of earnings not paid out as dividends.

While it's impossible to know the future, we do know that U.S. equities and the S&P 500 Index have performed strongly, and strong performance raises the challenge for future positive returns from valuation change. As of December 31, 2016, the S&P 500 had a dividend yield of 2.0%, which is also below the long-run average annual dividend reinvestment rate going back to December 31, 1957. We think this tells us that dividend growth has the potential to be a very strong factor in total returns of U.S. stocks going forward, and if approaches focused on quality can emphasize this component of total returns, it could make them particularly interesting.

MEASURING DIVIDEND GROWTH OF CURRENT CONSTITUENTS

It's important to look beyond the theoretical underpinnings of the indexes and note the types of exposures and other characteristics that are resulting from an indexes application.

One important attribute is the dividend growth of the current constituents of each index, measured against a market capitalization-weighted benchmark. The broad market capitalization-weighted benchmark represents the market in question, and the true question is whether the constituents being selected by this approach have been growing their dividends faster.

FIGURE 11: MEDIAN DIVIDEND GROWTH OF CURRENT CONSTITUENTS COMPARISON [as of 12/31/2016]

Thematic Focus	Index	Median Dividend Growth of Current Constituents		
		1-Year	3-Year	5-Year
United States Large Cap	WisdomTree U.S. Quality Dividend Growth	9.0%	11.5%	12.3%
	S&P 500	7.3%	10.0%	10.9%
United States Small Cap	WisdomTree U.S. SmallCap Quality Dividend Growth	6.0%	8.9%	8.4%
	CRSP U.S. Small Cap	4.6%	6.9%	7.2%
Developed Int. Large Cap	WisdomTree International Hedged Quality Dividend Growth	12.5%	14.7%	14.9%
	MSCI EAFE	5.4%	7.5%	8.3%
Emerging Markets Large Cap	WisdomTree Emerging Markets Quality Dividend Growth	10.6%	13.2%	7.8%
	MSCI Emerging Markets	0.0%	7.9%	5.4%
Europe Large Cap	WisdomTree Europe Quality Dividend Growth	10.0%	10.7%	11.2%
	MSCI Europe	6.2%	6.5%	7.5%
Japan Large Cap	WisdomTree Japan Quality Dividend Growth	11.5%	16.5%	14.9%
	JPX Nikkei 400	9.4%	14.5%	13.5%
	MSCI Japan	6.3%	10.3%	9.5%
Global ex-U.S. Large Cap	WisdomTree Global ex-US Quality Dividend Growth	10.0%	13.6%	13.6%
	MSCI ACWI ex-US	4.2%	7.7%	8.0%

Source: Bloomberg, with data as of 12/31/2016. Past performance is not indicative of future results. You cannot invest directly in an index.

+ The WisdomTree Quality Dividend Growth Indexes exhibit higher median dividend growth in every case shown. The biggest difference is seen within the WisdomTree Global ex-U.S. Index as compared to the MSCI ACWI ex-U.S. Index, whereas one of the closest comparisons is between the WisdomTree U.S. SmallCap Quality Dividend Growth Index and the CRSP U.S. Small Cap Index.

MEASURING LEVERAGE & DIVIDEND GROWTH POTENTIAL

While the recent dividend growth levels of the current Index constituents are certainly interesting, it doesn't illustrate fully how each element of the methodology links together in order to create an environment with future dividend growth potential. We show the theoretical dividend growth potential by multiplying the earnings retention rate with the ROE (from the dividend discount model above).

FIGURE 12: LOWER LEVERAGE WITH HIGHER DIVIDEND GROWTH POTENTIAL [as of 12/31/2016]

Index	P/E Ratio	Dividend Yield	Earnings Retention Rate	ROE	ROA	Leverage	ROE x Earnings Retention Rate
WisdomTree U.S. Quality Dividend Growth	18.0x	2.4%	57.3%	25.3%	7.7%	3.3x	14.5%
S&P 500	18.9x	2.1%	60.6%	12.5%	2.6%	4.8x	7.6%
WisdomTree U.S. SmallCap Quality Dividend Growth	17.1x	2.5%	57.5%	14.3%	4.0%	3.6x	8.2%
CRSP U.S. Small Cap	25.4x	1.7%	57.0%	2.4%	0.6%	3.9x	1.4%
WisdomTree International Hedged Quality Dividend Growth	18.2x	2.7%	51.0%	21.4%	8.5%	2.5x	10.9%
MSCI EAFE	16.4x	3.2%	47.8%	7.2%	0.9%	7.8x	3.4%
WisdomTree Emerging Markets Quality Dividend Growth	15.4x	3.7%	43.2%	23.4%	10.0%	2.3x	10.1%
MSCI Emerging Markets	13.6x	2.6%	65.4%	10.2%	2.0%	5.1x	6.6%
WisdomTree Europe Quality Dividend Growth	18.4x	2.9%	47.0%	20.9%	7.0%	3.0x	9.8%
MSCI Europe	16.6x	3.5%	41.8%	7.0%	0.8%	8.9x	2.9%
WisdomTree Japan Quality Dividend Growth	15.5x	2.3%	64.9%	9.8%	4.0%	2.5x	6.4%
JPX Nikkei 400	15.7x	2.0%	69.1%	8.0%	1.2%	6.5x	5.6%
MSCI Japan	16.0x	2.0%	68.3%	7.3%	1.1%	6.6x	5.0%
WisdomTree Global ex-US Quality Dividend Growth	16.9x	2.9%	50.6%	24.8%	10.7%	2.3x	12.5%
MSCI ACWI ex-US	15.8x	3.0%	52.4%	7.8%	1.1%	7.3x	4.1%

Sources: Bloomberg, Standard & Poor's, with data as of 12/31/2016. Past performance is not indicative of future results. You cannot invest directly in an index.

+ **Higher Dividend Growth Potential:** The WT methodology tends to increase the ROE x earnings retention (theoretically sustainable dividend growth) relative to the market capitalization-weighted benchmarks. The main driver of this is the higher return on equity rather than higher earnings retention.
+ **Lower Leverage with Each WT Quality Dividend Growth Index:** One of the key tenets of potential Buffett acquisitions is low debt. Relative to the market capitalization-weighted benchmarks that we show, there is a significantly lower leverage because of the inclusion of ROA as part of the selection criteria.

CONCLUSION

While quality can be measured in a variety of ways, we think that the broad themes of earnings consistency or growth, low debt and high return on equity are common threads to many different approaches. We've seen that, over time, focusing on quality has generated outperformance over different periods.

With an S&P 500 Index dividend yield close to 2.0% as of December 31, 2016, and the strong performance of U.S. equities that we have seen in recent years, we think it is difficult to imagine markets being driven by significant further dividend yield compression, and that dividend growth, which has been above its long-term average of 5.6%, will continue to be an important driver of returns.

WisdomTree's Quality Dividend Growth strategies could be interesting, in that they are designed to focus on long-term earnings growth expectations as well as on three-year average return on equity and return on assets. If equity markets do become more expensive, there is also an annual rebalancing process, which tilts weight toward qualifying firms whose dividends have become less expensive compared to their prices. Bottom line, these strategies have the potential to capture the quality theme but also to maintain a reasonable valuation while doing so.

Dividends are not guaranteed, and a company's future ability to pay dividends may be limited. A company currently paying dividends may cease paying dividends at any time. Diversification does not eliminate the risk of experiencing investment losses. You cannot invest directly in an index.

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WisdomTree U.S. Quality Dividend Growth Index: A fundamentally weighted index designed to track the performance of dividend-paying companies in the U.S. that WisdomTree believes have the potential to increase their dividends due to certain factors, which include estimated earnings growth, return on equity and return on assets. Weighting is by indicated cash dividends. WisdomTree U.S. SmallCap Quality Dividend Growth Index: A fundamentally weighted index designed to track the performance of dividend-paying companies in the U.S. small-cap equity universe that WisdomTree believes have the potential to increase their dividends due to certain factors, which include estimated earnings growth, return on equity and return on assets. Weighting is by indicated cash dividends. WisdomTree International Hedged Quality Dividend Growth Index: Designed to provide exposure to the developed market companies while neutralizing exposure to fluctuations between the value of foreign currencies and the U.S. dollar. Comprises companies from the WisdomTree International Equity Index with the best combined rank of growth and quality factors. WisdomTree Emerging Markets Quality Dividend Growth Index: A fundamentally weighted index designed to track the performance of dividend-paying emerging market companies that WisdomTree believes have the potential to increase their dividends due to certain factors, which include estimated earnings growth, return on equity and return on assets. Weighting is by trailing 12-month cash dividends. WisdomTree Europe Quality Dividend Growth Index: A fundamentally weighted index that measures the performance of dividend-paying common stocks with growth characteristics selected from the WisdomTree International Equity Index. The Index comprises companies from the eligible universe based on their combined ranking of growth and quality. WisdomTree Japan Quality Dividend Growth Index: A fundamentally weighted index that measures the performance of dividend-paying common stocks with growth characteristics selected from the WisdomTree International Equity Index. The Index comprises 300 companies from the eligible universe based on their combined ranking of growth and quality factors. The growth factor ranking is based on long-term earnings growth expectations, and the quality factor ranking is based on three- year historical averages for return on equity and return on assets. Companies are weighted in the Index based on annual cash dividends paid. WisdomTree Global ex-US Quality Dividend Growth Index: Designed to measure the performance of dividend-paying companies outside the United States with what WisdomTree believes to be potential for future dividend increases. Weighting is by Dividend Stream. S&P 500 Index: A market capitalization-weighted benchmark of 500 stocks selected by the Standard & Poor's Index Committee, designed to represent the performance of the leading industries in the United States economy. CRSP U.S. Small Cap Index: A market capitalization-weighted measure of the performance of small-cap equities in the United States. MSCI EAFE Index: A market cap-weighted index composed of companies representative of the developed market structure of developed countries in Europe, Australasia and Japan. MSCI Emerging Markets Index: A broad market cap-weighted index showing the performance of equities across 23 countries defined as "emerging markets" by MSCI. MSCI Europe Index: A free float-adjusted market capitalization-weighted index designed to measure the performance of developed equity markets in Europe. MSCI Japan Index: A market cap-weighted subset of the MSCI EAFE Index that measures the performance of the Japanese equity market. JPX-Nikkei Index 400: Composed of common stocks whose main market is the TSE First Section, Second Section, Mothers or JASDAQ market (in principle). The components are reviewed annually to keep the representativeness of the market. The annual review shall be conducted at the end of August as follows: (1) 1,000 stocks are selected based on trading value in the past three years and the market value on the selection base date (the end of June) of the annual review. (2) Each stock is scored by three-year average ROE, three-year cumulative operating profit and market value on the selection base date with the weights on each indicator 40%, 40% and 20%, respectively. (3) 400 stocks are selected by the final ranking with the scores calculated in (2) and qualitative factors from the perspectives of corporate governance and disclosure. In case of delisting of the components due to a merger or bankruptcy, etc., new stocks shall not be added in principle. When the annual review is conducted, the number of components is back to 400; therefore, the Index is calculated with fewer than 400 components until then. MSCI ACWI ex-US Index: A free float-adjusted market capitalization-weighted index designed to measure the equity market performance of developed and emerging markets excluding companies based in the United States. MSCI USA Index: A broad-based measure of free float-adjusted market capitalization-weighted equity market performance within the United States. MSCI USA Value Index: Measure of the performance of companies within the United States, weighted by free float-adjusted market capitalization, that have lower prices relative to their fundamentals, like dividends or book value. Russell 2000 Index: Measures the performance of the small-cap segment of the U.S. equity universe. The Russell 2000 is a subset of the Russell 3000 Index, representing approximately 10% of the total market capitalization of that index. It includes approximately 2,000 of the smallest securities based on a combination of their market cap and current index membership.

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