

QUALITY, DIVIDENDS AND PORTFOLIO APPLICATION

Using a quality dividend focus strategy to enhance outcomes



Portfolios created through the proprietary Quality Dividend Focus (QDF) strategy provided strong historical excess returns through exposure to higher-than-market quality and dividend yield, resulting in high information ratios that persisted over different market cycles. The QDF portfolios outperformed those focused solely on high dividend yield or high quality, as well as intersection portfolios of the two factors combined, emphasizing the importance of portfolio construction.

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ABSTRACT

Could a strategy focused on quality dividend-paying stocks generate positive relative performance that persists during various market cycles? To find out, we created four separate studies to test various aspects of a quality strategy weighted by the dividend yield of stocks.

- **Quality** – We created a quality factor, using fundamental financial statement data of dividend-paying stocks, to rank companies based on their ability to sustain and grow their earnings and cash flow. Companies with favorable scores based on our quality factor provided positive relative returns with strong information ratios; however, since the quality factor does not contain a valuation component, there were periods of underperformance based on the premium or discount the market assigns to quality companies.
- **Dividend Yield** – We found that, in isolation, high-dividend-yielding stocks showed positive relative returns with low information ratios.
- **The Intersection of High Quality and High Dividend Yield** – We built an intersection portfolio of high-quality and high-dividend-yielding stocks that outperformed the top quality and top dividend-yield portfolios on a stand-alone basis but contained biases that led to underperformance during various market cycles.
- **High-Quality and High-Dividend-Yielding Stocks in QDF Portfolio Construction** – Finally, a well-constructed portfolio utilizing the QDF strategy eliminated those biases and provided persistent excess returns throughout different market cycles, such as increasing and decreasing interest rate environments, value and growth markets, rising and falling markets, and markets where small capitalization companies outperform large capitalization companies.

STUDY 1: QUALITY

“Quality” must be defined before it can be measured and tested. In our first study, we defined quality as a function of various fundamental attributes that measure a company’s ability to sustain and grow its earnings and cash flow. We created a proprietary Quality Score (QS) to measure the quality of each dividend-paying stock based on three philosophical categories of business performance: management, profitability and cash.

Management

One way to test the quality of a company is to evaluate whether the management team is a good steward of shareholder capital. We believe that a quality firm has prudent investment management and uses its capital judiciously. Our research shows that firms with aggressive management may



over-deploy capital and enter into excessive commitments that are unlikely to deliver positive, incremental return to shareholders. Since capital expenditures can be difficult to cancel once started, firms that over-expand often lack the flexibility to strategically maneuver in volatile markets. For example, many homebuilders over-extrapolated the housing boom into perpetuity, leading to an over-deployment of capital and an increase in financial leverage. As the economy and housing market began to weaken, those firms found it difficult to sustain free cash flow. With an economic shock to their top-line growth and increased capital costs, margins quickly turned negative, and these firms struggled to meet their financial obligations.

Another signal of aggressive management is a firm's use of external financing. History shows that companies can over-estimate the synergies and cost advantages of expansions and acquisitions. Companies that are very aggressive in this dimension often find it difficult to sustain or grow dividend payments when their margins are pressured. Thus, we view a "quality" company as one whose management uses its capital and leverage in a prudent and conservative manner.

Profitability

Our evaluation of quality extends beyond management factors and analyzes the profitability of a business. We believe a firm with higher profitability delivers excess returns to its shareholders in the form of higher earnings, cash flow and dividends. The profitability factors in our QS can offset the negative impact of aggressive management decisions. For example, a company with a negative management score could still receive a high quality rank if its profitability is high enough to offset its negative management score. The stock's overall quality score would reflect the combination of high profitability and the risk of aggressive management decisions.

Cash

Finally, we believe quality companies have more than enough cash on hand to meet their debt obligations and day-to-day liquidity needs as well as to sustain their indicated dividends. Our research shows that companies that pay dividends and have a healthy amount of cash on their balance sheets tend to increase their dividends in subsequent years. Thus, the third and final component of our proprietary quality score measures cash available to shareholders.

Backtesting

We backtested the QS's performance in the United States (based on the Russell 3000 universe) and outside the United States (based on the MSCI World ex-U.S. universe). Stocks in each universe were divided into quintiles, with one being the highest-quality stocks and five being the lowest-quality stocks. In Table 1, the top section shows the QS performance in the U.S. universe, and the bottom section shows the QS performance in the non-U.S. universe. The returns (orange) show that the top quintile of quality had the best relative performance in both the U.S. and non-U.S. universes. In addition, the second column shows that the top QS quintiles also had relatively low volatility. The combination of high returns and low volatility generated the highest information ratios in the top QS quintiles. Furthermore, as we would expect, companies in the highest QS quintile also had above-average dividend growth (green).

TABLE 1: BACKTEST RESULTS FOR THE QUALITY SCORE (QS)

U.S. (Russell 3000): 1/1/1979 – 12/31/2010						
QS Quintile	Return	Volatility	Information Ratio	Sharpe Ratio	Average Portfolio Yield	Average Dividend Growth
Top	15.89%	16.64%	1.03	0.68	1.97%	9.70%
▼	13.47%	16.11%	0.42	0.58	2.47%	9.23%
Middle	12.21%	16.18%	-0.11	0.48	2.86%	8.23%
▼	11.42%	16.81%	-0.49	0.41	3.45%	7.02%
Bottom	9.11%	18.59%	-0.79	0.25	4.36%	5.73%
Non-U.S. (MSCI World ex-U.S.): 1/1/1995 – 12/31/2010						
QS Quintile	Return	Volatility	Information Ratio	Sharpe Ratio	Average Portfolio Yield	Average Dividend Growth
Top	10.80%	16.73%	1.12	0.38	2.18%	9.99%
▼	10.22%	16.94%	1.00	0.34	2.12%	7.14%
Middle	8.05%	17.28%	-0.03	0.21	2.03%	5.88%
▼	6.73%	18.06%	-0.70	0.12	1.93%	5.00%
Bottom	4.69%	18.30%	-1.27	0.01	1.76%	3.57%

Source: Northern Trust Research, Wilshire Atlas

While the QS factor showed strong historical excess returns and strong risk-adjusted performance, our research shows that quality alone can lead to periods of underperformance. Since price is not a major component of the QS factor, the valuation of the stock does not determine which companies are classified as quality. At times, quality can be expensive, which can lead to periods of underperformance depending on the premium or discount the market assigns to quality companies.

STUDY 2: DIVIDEND YIELD

We examined the historical performance of stocks ranked by their level of dividend yield, using a universe of U.S. and non-U.S. securities as defined by the Russell 3000 and MSCI World ex-U.S. indexes. We identified each company's expected dividend yield at the beginning of the year and excluded companies that had not paid a dividend the prior year. In the U.S. universe, stocks were separated into 10 sectors, as defined by the Global Industry Classification Standard, and sorted based on dividend yield. We separated each sector into deciles – highest dividend-yielding stocks in the first decile and the lowest dividend-yielding stocks in the tenth. The annual performance of each decile was measured from 1979 through 2010. We similarly studied dividend yield for non-U.S. securities but used region (United Kingdom, Europe, Japan, Pacific and North America) instead of sector and measured each decile's annual performance from 1995 through 2010.

Although the results (Table 2) show strong positive excess returns in the upper deciles of yield, the performance of the highest-yielding decile was relatively volatile. In the U.S. universe, performance volatility increases as dividend yield rises, resulting in lower information ratios. Stocks in the top 10% of yield tended to be the most volatile and underperformed the other deciles possibly because the top decile contains distressed companies with unsustainably high dividend payments that the market believes may be cut to conserve cash. As companies cut their dividend payments, they tend to underperform the other deciles of dividend yield.

As shown in the MSCI World ex-U.S. portion of Table 2, the excess returns for the top deciles of yield exceeded the top deciles in the U.S. universe. Unlike the U.S. universe, the top decile of yield had the highest excess return among all deciles but, like the U.S. universe, had among the highest levels of volatility.

U.S. (Russell 3000) Equal-Weighted Statistics					Non-U.S. (MSCI World ex-U.S.) Equal-Weighted Statistics				
Deciles		Excess Return	Volatility of Excess Return	IR	Deciles		Excess Return	Volatility of Excess Return	IR
Highest Yield	1	2.21%	15.87%	0.14	Highest Yield	1	7.14%	10.48%	0.68
	2	3.31%	13.40%	0.25		2	5.13%	6.74%	0.76
	3	4.52%	11.94%	0.38		3	3.61%	6.21%	0.58
	4	2.83%	11.75%	0.24		4	5.06%	5.04%	1.00
	5	2.66%	11.10%	0.24		5	4.61%	4.41%	1.05
	6	2.61%	10.73%	0.24		6	0.86%	4.03%	0.21
	7	2.49%	10.50%	0.24		7	(3.53%)	5.49%	(0.64)
	8	0.91%	9.85%	0.09		8	(5.36%)	6.84%	(0.78)
Lowest Yield	9	2.28%	9.20%	0.25	Lowest Yield	9	(6.95%)	7.99%	(0.87)
	10	0.46%	8.57%	0.05		10	(7.69%)	11.10%	(0.69)
No Dividend		(2.39%)	7.49%	(0.32)	No Dividend		(4.61%)	9.68%	(0.48)

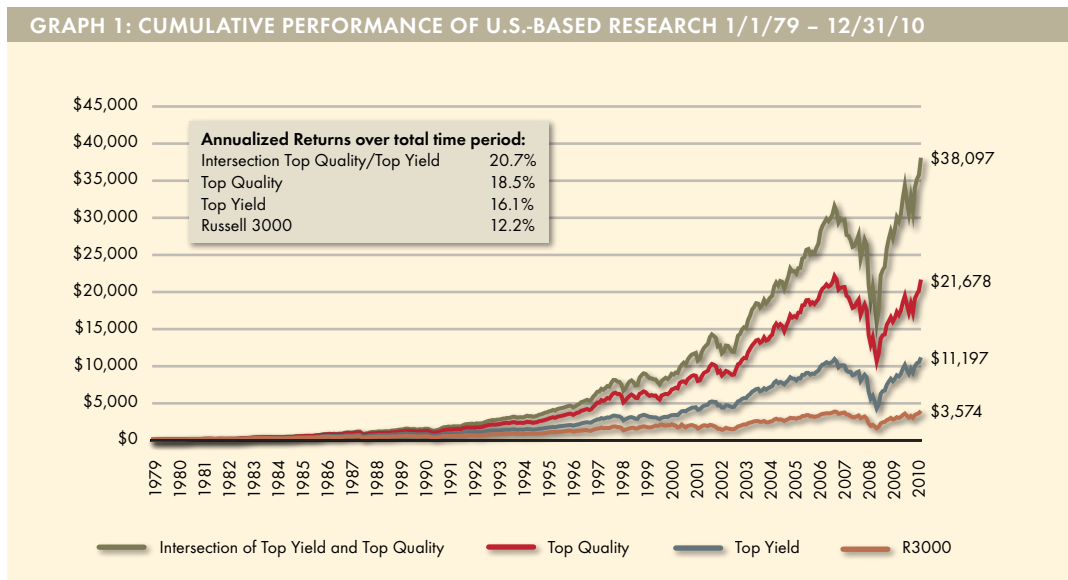
Source: Northern Trust Research, Wilshire Atlas

Our research shows that dividend-paying stocks historically outperformed non-dividend paying stocks and that higher dividend-yielding stocks historically outperformed lower-yielding stocks in U.S. and non-U.S. markets. However, the highest decile portfolios exhibited high volatility, and their risk-adjusted performance might improve if one could delineate which companies would likely cut their dividends in the future.

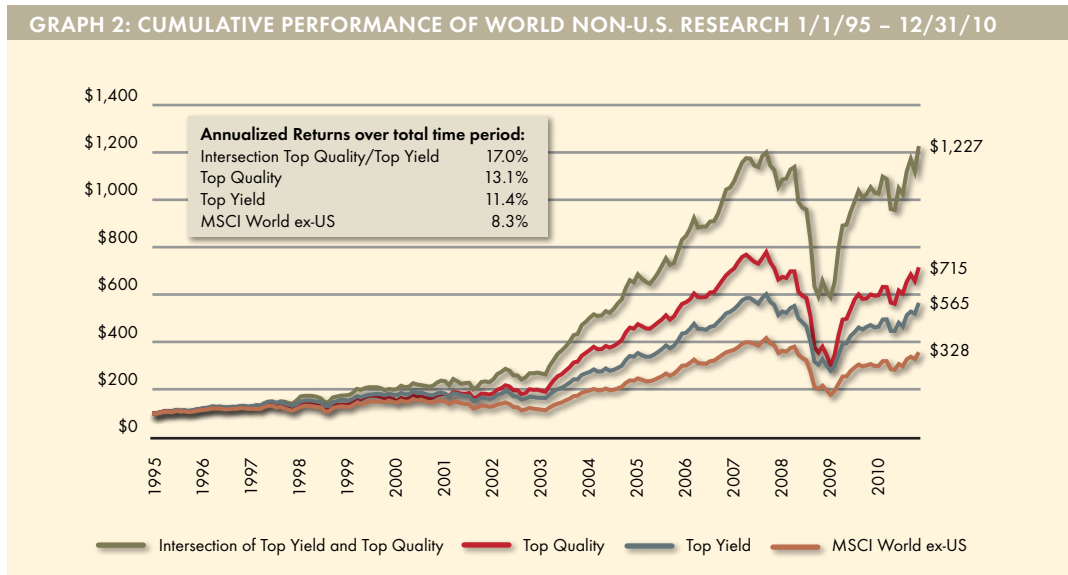
STUDY 3: THE INTERSECTION OF HIGH QUALITY AND HIGH DIVIDEND YIELD

Our research illustrates that top-quality companies (as a function of fundamental factors) generally outperformed the market with lower volatility and that higher dividend-yielding stocks generally outperformed the market but with higher volatility. Our third study used the intersection of portfolios comprised of high-dividend-yielding and high-quality stocks to test the historical performance of a combined portfolio.

The blue lines in Graphs 1 and 2 show the historical performance of the equal-weighted portfolios of stocks in the top quintiles of yield. The red lines in Graphs 1 and 2 show the historical performance of an equal-weighted portfolio of stocks in the top quintiles of our QS. The graph shows that the highest-quality and highest dividend-yielding companies outperformed the index over the study period. The green lines in Graphs 1 and 2 show that the intersection of the top-quality and top-yielding stocks performed better than either factor on a stand-alone basis.



Source: Northern Trust Research, Wilshire Atlas



Source: Northern Trust Research, Wilshire Atlas

To examine the intersection in more detail, the performance for the 25 equal-weighted intersection portfolios of the five quintiles of yield with the five quintiles of QS was measured over the study period. Table 3 shows the annualized excess returns of the portfolios. In the United States, we find that the best-performing portfolios were at the intersection of the highest-yielding stocks and the highest-quality stocks. The group of stocks ranked as a “1” in quality (in the top 20% of the universe in QS) and ranked as a “1” in yield (in the top 20% of dividend yield in the market) had the best performance, with an annualized excess return of 10.5% compared to the Russell 3000 index during 1979 through 2010. The lowest-quality portfolios (far-right column) were the worst-performing portfolios in the U.S. results. Furthermore, our research shows that the highest-quality quintile (column 1) had the best performance regardless of its corresponding dividend yield. Similarly, portfolios in the top quintile of dividend yield (row 1) also ranked among the best performers.

TABLE 3: ANNUALIZED EXCESS RETURN OF THE INTERSECTION OF QUALITY AND YIELD PORTFOLIOS IN THE U.S. 1/1/79 – 12/31/10

		High		Median		Low	
		Quality		Quality		Quality	
		1	2	3	4	5	
High	Dividend Yield	1	10.5%	7.7%	3.4%	2.0%	-1.7%
		2	9.2%	6.4%	3.9%	2.3%	-0.8%
Median	Dividend Yield	3	8.7%	3.4%	2.2%	0.7%	-2.4%
		4	8.3%	3.5%	1.8%	-0.9%	-2.8%
Low	Dividend Yield	5	4.9%	2.4%	0.0%	-0.9%	-4.2%

Quintile Breakdown of Annualized Excess Returns vs. Benchmark
■ 1ST Quintile ■ 2ND Quintile ■ 3RD Quintile ■ 4TH Quintile ■ 5TH Quintile

Source: Northern Trust Research, Wilshire Atlas

TABLE 4: ANNUALIZED EXCESS RETURN OF THE INTERSECTION OF QUALITY AND YIELD PORTFOLIOS IN THE WORLD EX-U.S. 1/1/95 – 12/31/10

		High		Median		Low	
		Quality		Quality		Quality	
		1	2	3	4	5	
High	Dividend Yield	1	8.7%	7.9%	2.2%	3.0%	1.6%
		2	2.9%	1.4%	2.0%	1.5%	-0.4%
Median	Dividend Yield	3	2.0%	1.1%	1.9%	-1.2%	-2.5%
		4	-0.9%	1.1%	0.1%	-1.7%	-5.0%
Low	Dividend Yield	5	-0.7%	-2.2%	-3.5%	-6.8%	-7.2%

Quintile Breakdown of Annualized Excess Returns vs. Benchmark
■ 1ST Quintile ■ 2ND Quintile ■ 3RD Quintile ■ 4TH Quintile ■ 5TH Quintile

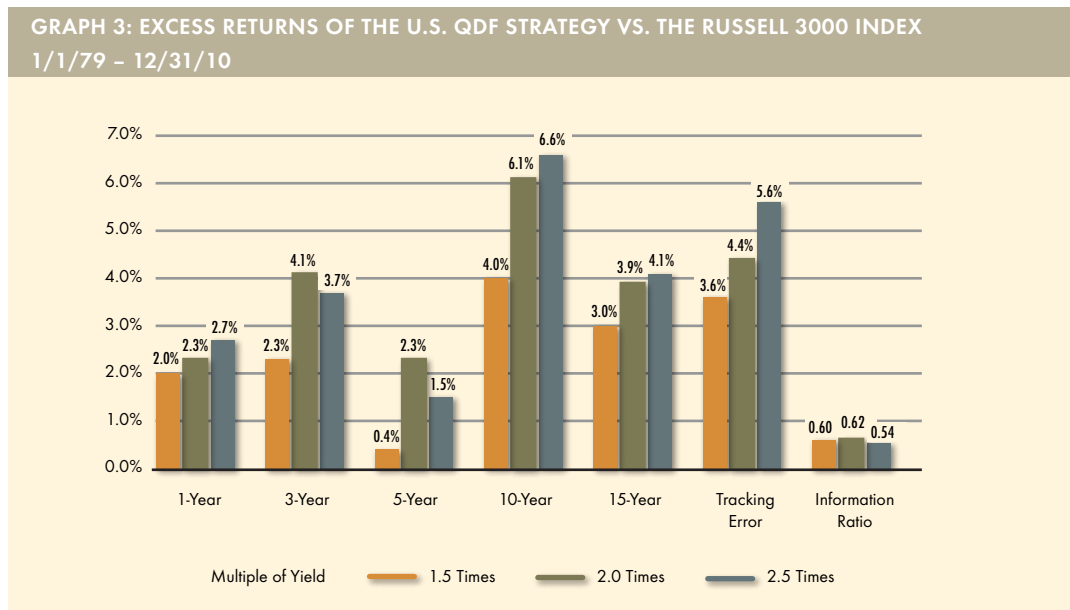
Source: Northern Trust Research, Wilshire Atlas

Table 4 shows the excess return of the equal-weighted portfolio of non-U.S. stocks identified by the intersection of the corresponding levels of yield and quality. In the World ex-U.S. market, we find that the best-performing portfolios were also at the intersection of the highest-yielding and highest-quality portfolios. The group of stocks ranked as a “1” in quality (in the top 20% of QS) and ranked as a “1” in yield (in the top 20% of dividend yield) was the best-performing group, with an annualized excess return of 8.7% compared to the MSCI World ex-U.S. index during 1995 through 2010. The portfolios with the lowest dividend yield (shown in the bottom row) had the worst performance in our results. Unlike the U.S. portfolio results, our World ex-U.S. results show that many of the best-performing portfolios are in the highest-yielding group, regardless of quality. However, the volatility in these portfolios is higher, which causes the information ratio to gradually decline to zero as we move into the lowest-quality quintile.

STUDY 4: HIGH-QUALITY AND HIGH-DIVIDEND-YIELDING STOCKS IN QDF PORTFOLIO CONSTRUCTION

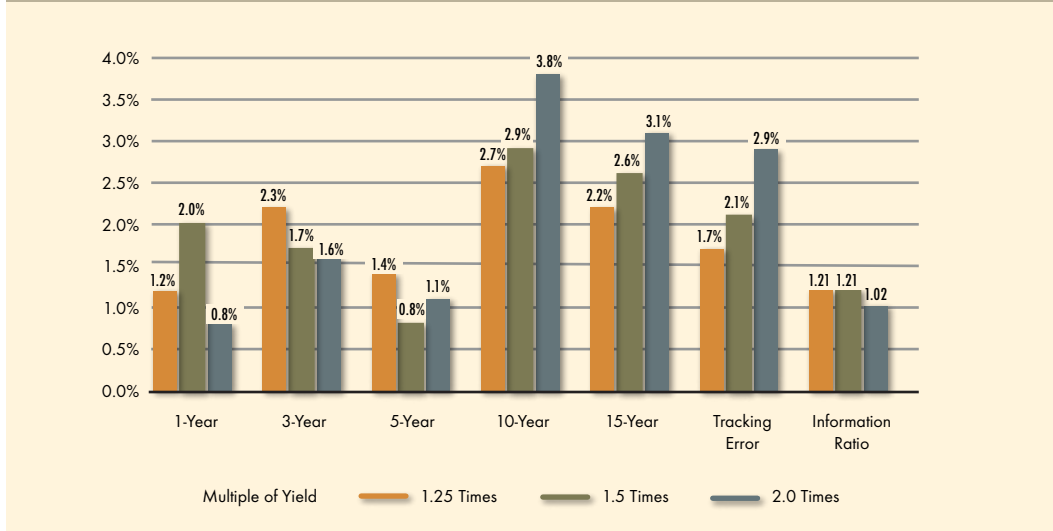
As the previous discussion illustrates, the intersections of high-quality and high-dividend-yielding portfolios provided meaningful excess returns in our historical research. However, it is important to apply thoughtful portfolio construction techniques to capture the outperformance of this relationship in various market cycles. These portfolio construction techniques help eliminate unintended exposures and create a portfolio well-suited to various market environments. For example, the equal-weighted portfolios of the intersection of the highest-quality and highest-yielding stocks created in our research tend to have lower-than-market sensitivity (beta), a value style bias and high sector concentrations. These exposures can be magnified by certain weighting schemes, such as an equal-weighting scheme or weighting the portfolio by dividend yield. The result may be a portfolio that seems well-diversified but actually has exposures to certain cyclical factors that can introduce the possibility of long periods of underperformance. In portfolio construction, we seek to minimize these risk exposures while maximizing exposure to high-quality and high-dividend-yielding stocks, which is where our research shows a history of excess returns. This construction technique is the basis for our Northern Trust Quality Dividend Focus (QDF) strategy.

The QDF strategy is designed to provide a portfolio that has a higher quality exposure than the market, a higher dividend yield than the market, and a total return focus that generates outperformance throughout various market cycles. Our research shows that portfolios in our historical backtests were compensated for additional tracking error and that information ratios tended to remain constant when targeting dividend yields of 1.25 to 2.5 times the market yield in the QDF U.S. and non-U.S. strategies (Graphs 3 and 4). The relationship between dividend yield and risk allows for customization of yield, tracking error or expected return, depending on the investment goal of the portfolio.



Source: Northern Trust Research, Wilshire Atlas

GRAPH 4: EXCESS RETURNS OF THE NON-U.S. QDF STRATEGY VS THE WORLD EX-U.S. QDF STRATEGY 1/1/95 - 12/31/10



Source: Northern Trust Research, Wilshire Atlas

Our studies show positive excess returns over the entire period tested. However, these returns must be examined in more detail to determine whether the excess return is driven solely by strong performance in one type of market environment. For this examination, we generated five different studies of the backtest results to investigate the strategy’s performance in certain market environments defined using the following criteria:

- Increases and decreases in the 10-year U.S. Treasury Constant Maturity Rate
- Increases and decreases in the 90-day U.S. Treasury bill rate
- Small cap outperformance relative to large cap
- Rising markets and falling markets
- Value outperformance relative to growth

In each of the five studies, the monthly returns from the QDF backtest were separated into three groups. Each group was created based on the criteria used to define the market environment. For example, the monthly changes in the 10-year U.S. Treasury Constant Maturity rate were sorted from highest increase to lowest increase. The account’s performance during the top third of rate increases was 21.52%, and the benchmark performance was 18.23% (see first row, Table 5). This shows that the strategy outperformed the benchmark during months when interest rates increased most. Table 5 offers detailed results of each study and provides annualized returns and t-statistics for the three groupings in each market period studied in the U.S. backtest. Table 5 also shows whether the relationship between the strategy’s performance and the type of market environment was statistically significant in each study.

As Table 5 shows, only two of the market environments studied showed a statistically significant relationship to the strategy's performance and the market environment. We found that changes in long or short interest rates do not have a statistically significant impact on the QDF strategy's relative returns. We also found that large cap and small cap market cycles generally do not have a statistically significant impact on the strategy returns; however, the portfolio had higher outperformance when small cap stocks outperformed large cap stocks.

We found a statistically significant difference in excess returns during market up and down periods. The strategy outperformed when the market was down (2.81% excess return) and when market return was between the top and bottom third of monthly return history. During the top third of monthly returns, the portfolio underperformed the benchmark by -0.37%. This study also indicates that the QDF strategy generally performed better than the market in most periods but slightly underperformed during months with the highest market returns. In total, the strategy outperformed in 51% of the up months and 75% of the down months, with a 10-year Up-Capture ratio of 113% and a Down-Capture ratio of 81%.

TABLE 5: U.S. STRATEGY PERFORMANCE IN DIFFERENT MARKETS 1/1/79 - 12/31/10						
	Portfolio Returns	Benchmark Returns	Excess return	IR	T Stat	Statistically Significant
Increase/Decrease in 10-Year U.S. Treasury Rates					1.18	No
Increasing Rates	21.52	18.23	3.29	1.16		
Middle	18.66	14.64	4.02	1.00		
Decreasing Rates	4.91	3.83	1.08	0.40		
Increase/Decrease in U.S. Treasury Bill Rates					0.36	No
Increasing Rates	12.18	8.77	3.41	1.20		
Middle	20.60	18.63	1.97	0.66		
Decreasing Rates	12.17	9.43	2.75	0.71		
Small/Large Cap Market					-0.31	No
Large	-0.30	-2.76	2.46	0.81		
Middle	17.00	14.92	2.08	0.89		
Small	29.99	26.19	3.80	0.91		
Rising/Falling Markets					2.57	Yes
Falling	-34.76	-37.57	2.81	0.86		
Middle	21.43	17.83	3.60	1.22		
Rising	92.30	92.67	-0.37	-0.11		
Value/Growth Market					-4.14	Yes
Growth	34.21	35.09	-0.88	-0.24		
Middle	10.83	9.91	0.92	0.50		
Value	1.67	-5.32	6.99	2.04		

Source: Northern Trust Research, Wilshire Atlas

The excess returns during growth and value markets also showed a statistically significant relationship. The strategy did relatively well in value markets (+6.99% of excess return) but slightly underperformed in the highest growth markets (-0.88% of excess return). This underscores the QDF strategy's design: create a core portfolio that participates in both value and growth markets and does not give back large amounts of relative performance during strong growth markets.

We conducted the same five studies for the non-U.S. QDF strategy and listed the results in Table 6. Again, we did not find a statistically significant relationship between the monthly returns of the non-U.S. strategy and interest rate movements. While excess returns were positive in both small and large cap markets, the strategy outperformed more in small cap markets. Similar to the U.S. strategy, the non-U.S. backtests underperformed during strong growth markets. In total, the results show that the strategy outperformed in 53% of the up months and 71% of the down months, with a 10-year Up-Capture ratio of 128% and a Down-Capture ratio of 96%. Unlike the U.S. strategy, the international portfolio did well in both up and down markets, but the relationship was not statistically significant.

TABLE 6: WORLD EX-U.S. STRATEGY PERFORMANCE IN DIFFERENT MARKETS 1/1/95 – 12/31/10						
	Portfolio Returns	Benchmark Returns	Excess return	IR	T Stat	Statistically Significant
Increase/Decrease in 10-Year U.S. Treasury Rates					0.40	No
Increasing Rates	-5.27	-9.72	4.44	1.43		
Middle	13.44	10.42	3.02	1.13		
Decreasing Rates	26.62	22.74	3.88	0.90		
Increase/Decrease in U.S. Treasury Bill Rates					0.77	No
Increasing Rates	-3.77	-8.32	4.55	1.68		
Middle	34.04	30.60	3.44	0.78		
Decreasing Rates	5.32	2.07	3.26	1.16		
Small/Large Cap Market					-2.08	Yes
Large	1.18	-0.31	1.50	0.58		
Middle	23.94	21.74	2.20	0.89		
Small	8.98	1.32	7.65	1.69		
Rising/Falling Markets					0.55	No
Falling	-41.75	-44.95	3.20	0.94		
Middle	18.40	16.48	1.91	0.93		
Rising	98.30	91.84	6.46	1.48		
Value/Growth Market					-4.62	Yes
Growth	4.63	6.43	-1.79	-0.71		
Middle	15.90	14.07	1.83	0.92		
Value	12.70	1.29	11.41	2.71		

Source: Northern Trust Research, Wilshire Atlas

PERSISTENT HISTORICAL EXCESS RETURNS

We presented historical research on the returns of our proprietary quality score and on high dividend-yielding stocks. We found that stocks with high QS scores and stocks with high dividend yields historically outperform the U.S. and non-U.S. markets. Furthermore, when we combined stocks with the highest quality scores and highest dividend yields into a single portfolio, the excess returns increased. However, since this intersection portfolio can have characteristics that lead to undesired market exposures (low beta, value bias, sector concentration), we developed the Quality Dividend Focus strategy to combine yield and quality while reducing undesired risk exposures. Portfolios created through the QDF strategy showed strong historical excess returns, lower volatility and high information ratios that persisted over different market cycles.

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