

What Difference Do Dividends Make?

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We evaluate the investment benefits of dividend-paying stocks and identify three major findings. First, high-dividend payers have the least risk yet return over 1.5% more per year than do nondividend payers. Second, the benefit of targeting dividend payers is conditional on investment style. Surprisingly, the benefit is largest for growth and small-cap stocks, the stocks of companies usually thought to benefit the most from reinvesting their cash flows. Third, long-short managers exploiting the value premium should focus on non-dividend-paying stocks as non-dividend-paying small-cap value stocks return 1% more per month than do non-dividend-paying small-cap growth stocks.

In their classic text *Security Analysis*, Graham and Dodd (1934) argued that investors prefer a sure dividend to the risk of allowing the company to reinvest it.¹ Dividends are noted for their ability to provide a relatively reliable return, buffer capital losses, reduce portfolio volatility, and lower the risk of overpaying for a stock.² Dividends are also said to mitigate agency problems between managers and shareholders by reducing the possibility of managers' squandering funds.³ Arnott and Asness (2003) found support for the belief that cash reserves should be paid out as dividends rather than retained.

Dividend yield is widely used as an investment metric by mutual funds, exchange-traded funds (ETFs), investment advisers, and popular investment strategies. Harris, Hartzmark, and Solomon (2015) found that some mutual funds go so far as to inflate their dividend yield by trading in and out of stocks around ex-dividend dates. The so-called Dogs of the Dow strategy, a popular investment strategy that relies on dividend yield, has garnered considerable attention due to evidence suggesting that it produces abnormal returns.⁴

Campbell and Shiller (1988) and Ang and Bekaert (2007), among others, found that dividend yields

have significant predictive power for future stock market returns. Dividend yields weakly forecast the dividend growth component of stock returns. Therefore, changes in dividend yields are attributed to the changing forecasts of expected returns whereby a high dividend yield implies greater risk and greater expected return.

Dividend yield is also commonly associated with style investing, with growth stocks characterized as having low dividend yields and value stocks as having high dividend yields. Studies have found that value stocks outperform growth stocks in the long run.⁵ This relationship is referred to as the *value effect*, and the return difference between value and growth stocks is called the *value premium*. Several studies have linked the value premium to stock liquidity and other company risks (e.g., Campbell and Shiller 1988; Asness, Moskowitz, and Pedersen 2013), which are also tied to dividend yield. This evidence establishes a potential link between the value premium and dividend yield.

Investors in growth stocks may place little value on dividends, because they are primarily attracted to growth potential. Conversely, for value investors, the prospects of value companies are more limited; thus, the payment of a dividend may be important. The value effect has been documented extensively, but relatively little is known about the role of dividends within value and growth portfolios. Although earlier research found that stocks with higher dividend yields have higher subsequent average returns, controlling for equity style affords a more precise examination of the role of dividends in stock performance.

Dividend clienteles have been shown to exist across both institutional and individual investors. Researchers have reported that mutual funds and ETFs operate in a market segmented by equity style

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and that dividends are one of the main drivers of choice.⁶ Dividend clienteles and constraints that prevent investors from moving freely across clienteles create an environment that promotes return differences across dividend levels. On the basis of these considerations, Manconi and Massa (2013) reported evidence that supports a link between dividends and company value.

This prior research motivated our examination of stock returns with respect to dividend yield and equity style. In this article, we incorporate the impact of taxation by reporting total returns and the dividend yield component, which allows investors to estimate after-tax returns. Thus, our findings have direct applicability for taxable investors, individual investors managing tax-exempt accounts, and institutions managing tax-exempt portfolios.

Our study makes several contributions. First, it is motivated by Fama and French (2007), who reported that since the 1960s, dividends have constituted a greater proportion of the returns to value stocks relative to growth stocks. Whereas Fama and French looked at performance differences attributable to dividends across value and growth stocks, we examined performance differences attributable to dividends within value and growth portfolios. Our methodology allowed us to examine whether dividend yield, independent of style, is a differentiator of performance.

Second, we investigated whether the existence of dividend clienteles creates a relationship between dividend yield, BE/ME (book equity to market equity), and realized stock returns. Owing to such unique investor characteristics as taxes and equity style, investors may restrict themselves to stocks with particular dividend policies (see Manconi and Massa 2013). The adherence of individual and institutional investors to particular dividend levels can create stock return patterns. For example, growth investors tend to avoid dividend-paying stocks, congregating instead in non-dividend-paying stocks of below-average size. The rationale is that companies of below-average size with high earnings retention rates offer greater prospects for future growth.

Third, we report on the relationship between dividend level and company size, which provides information regarding the optimal dividend tilt across the spectrum of market-cap styles. For each investment style, we tested the statistical significance of risk and return differences for portfolios of low, high, and extreme dividend yields relative to a no-dividend portfolio.

Fourth, we offer evidence concerning the Dogs of the Dow strategy (Dogs strategy) in the context of a larger sample. The Dogs strategy has been shown to be successful for a small subset of survivor stocks, but we examined the entire sample of US stocks over

five decades. Unlike typical tests of the Dogs strategy—which use equally weighted, arithmetic mean returns—we used geometric mean returns with market value weights to account for the liquidity actually available. Our methodology avoids the issues identified by Hirschey (2000) that have plagued previous research on the Dogs strategy.

Lastly, our study relies on a more complete and reliable sample relative to prior studies. We examined returns over a variety of market conditions and a very long time span. Our sample includes more than 50 years of data, from 1962 to 2014, when the US dividend yield ranged from 1.1% to 5.6%.⁷ We also separated extreme-dividend-yield companies from the dividend-paying group owing to their unique characteristics, which differentiate them from the typical high-yield company.

Sample and Methodology

Using data from the Center for Research in Security Prices (CRSP) and Compustat, we examined the benefits of alternative dividend exposures across investment styles, with relative value delineated by using BE/ME and size measured as the market value of equity. We also combined value and size characteristics to evaluate the performance of the nine portfolios that form the traditional style grid. We ranked companies by BE/ME, sorting them into portfolios such that the 30% with the highest BE/ME formed the value portfolio, the middle 40% composed the blend portfolio, and the bottom 30% constituted the growth portfolio. We followed the same approach in sorting companies by market value of equity into small-, mid-, and large-cap portfolios.

We followed Fama and French (1992) in deriving BE/ME and market capitalization (ME), ensuring that accounting data were available before the return measurement period (July of year t to June of year $t + 1$).⁸ We re-formed portfolios annually and derived returns as monthly value-weighted returns. Overall, the sample period includes 51.5 return measurement years of data from July 1963 through December 2014 (618 months of returns).

Following the evidence of Hirschey (2000) and Willenbrock (2011), we measured performance on the basis of geometric mean returns. Hirschey contended that the returns reported for the original Dogs strategy were inflated by the use of arithmetic mean returns. Likewise, Willenbrock showed strong evidence that the arithmetic mean can produce misleading performance for asset classes with relatively high variance. This problem was particularly pertinent to our study because several portfolios had inflated levels of volatility. Moreover, the transaction costs of monthly rebalancing—required to garner a

return matching the arithmetic mean—would greatly reduce the realized return.

Once the sample was segmented by investment style, we formed four dividend yield portfolios within each style category: no dividend, low dividend, high dividend, and extreme dividend. We divided the dividend payers, roughly in half, into low- and high-dividend portfolios; within the dividend-paying portfolio, we classified the top 5% of dividend payers, sorted by dividend yield, as extreme-dividend payers.⁹

We treated the extreme-dividend payers as a separate group because of the unique nature of these companies, which are frequently financially distressed (as evidenced by their relatively low stock price) and thus do not fit in with the typical high-dividend stock. Given the relatively small samples and the uniqueness of the extreme-dividend group, we recommend that this group's performance be interpreted with caution. We treated the extreme-dividend group primarily as an outlier that would, if included with the high-dividend group, obscure the true nature of companies with above-average dividend yields.

For each dividend classification, **Table 1** presents the averages for the three company characteristics that we considered: dividend yield, market cap (ME), and BE/ME. The average dividend yields for the full sample and the low-, high-, and extreme-dividend portfolios are 2.038%, 1.594%, 4.289%, and 9.512%, respectively. The large dividend yield for the extreme portfolio is noteworthy and justifies the exclusion of these companies from the high-dividend group. Obviously, the extreme group contains a number of financially distressed companies expected to drop their dividend.

The mean market cap (ME) reflects the well-recognized positive relationship between company size and dividend yield. In general, companies

initiate a dividend only after they have become somewhat established. Therefore, the no-dividend group contains considerably smaller companies, on average, than do the dividend-paying categories. In particular, the average market cap of the no-dividend companies is less than a fourth of the cap of the low- and high-dividend groups.

The mean book-to-market ratio (BE/ME) reflects the widely recognized observation that companies with high BE/ME (value companies), on average, pay relatively high dividends. Value funds are commonly referred to as income funds because of their component stocks' relatively high dividend yields.

The observed association between dividend yield and both ME and BE/ME supports the merits of our analysis. Controlling for these two characteristics is essential to a proper assessment of the influence of dividend yield on the success of alternative investment strategies. Clearly, implementing a generic small-cap strategy would result in a portfolio with a below-average dividend yield, whereas following a generic large-cap strategy would produce a portfolio with an above-average dividend yield. Likewise, following a generic growth (value) strategy would coincide with a below-average (above-average) dividend yield portfolio.

Results

Table 2 presents the geometric mean monthly return, mean dividend yield, standard deviation of monthly returns, and average Sharpe ratio for the four dividend portfolios.¹⁰ Unlike the dividend yields reported in Table 1, the dividend yield values in Table 2 are the *ex post* dividend yields. Subsequent tables also report the *ex post* dividend component of the mean return. The difference between the dividend yield component and the mean monthly return represents the return's capital gain component. Thus, readers can use their

Table 1. Descriptive Statistics

	Full Sample	No Dividends	Low Dividends	High Dividends	Extreme Dividends
Mean dividend yield (ttm)	2.038%	0.000%	1.594%	4.289%	9.512% ^a
Mean ME (in millions)	\$1,322	\$559	\$2,473	\$2,435	\$1,492
Mean BE/ME	0.95	0.92	0.83	1.06	1.26
<i>Sample size</i>					
<i>N</i> average	3,736	1,988	873	790	87
<i>N</i> high	6,478	4,306	1,341	1,200	133
<i>N</i> low	1,069	265	404	359	38

Notes: This table reports the mean value for the dividend yield (ttm [trailing 12 months]), market cap (ME), and book-to-market ratio (BE/ME). The table also reports the average number of companies (*N* average), the maximum number of companies (*N* high), and the minimum number of companies (*N* low) in each of the portfolios.

^aBy definition, the extreme-dividend-yield stocks include several outliers; thus, we report the median dividend yield for this portfolio.

Table 2. Returns by Level of Dividend Yield

	Dividend Yield Portfolio			
	No	Low	High	Extreme
<i>Investment performance</i>				
Mean monthly return	0.765%	0.797%	0.897%	0.850%
<i>t</i> -Statistic		0.20	0.64	0.36
Dividend yield	0.012%	0.159%	0.366%	0.526%
Standard deviation	7.035%	4.746%	4.014%	4.950%
<i>F</i> -statistic		2.20**	3.07**	2.02**
Average Sharpe ratio	0.13	0.16	0.21	0.18
<i>t</i> -Statistic		1.08	1.90	1.10

Notes: This table presents the value-weighted geometric mean returns, contemporaneous dividend yields, standard deviations, and Sharpe ratios. The first column reports the statistics for the portfolio of non-dividend-paying stocks, followed by the low-dividend-yield, high-dividend-yield, and extreme-dividend-yield portfolios. For the portfolios of dividend-paying stocks, we report the results of a *t*-test of the hypothesis that the mean return (and Sharpe ratio) of the portfolio of non-dividend-paying stocks is equal to the mean return (and Sharpe ratio) of the portfolio of dividend-paying stocks. We also report results of an *F*-test of the hypothesis that the variance of the portfolio of non-dividend-paying stocks is equal to the variance of the portfolio of dividend-paying stocks.

**Significant at the 1% level.

unique dividend and capital gains tax rates to assess the reported portfolio performance.

The returns show a monotonic increase going from the no-dividend portfolio to the high-dividend portfolio but then diminish slightly for the extreme-dividend portfolio. The high-dividend portfolio has the highest mean monthly return, 0.897%. Although none of the return differences (between the no-dividend companies and the dividend-paying companies) are statistically significant, the extra return offered by the high-dividend portfolio would be considered economically important by most investors.¹¹ Specifically, 13.2 bps (0.897 – 0.765) per month translates into an annual return difference of over 1.5%. Thus, our preliminary findings offer tangential, if limited, support for the Dogs strategy as a way to enhance returns.¹²

The *ex post* dividend yield increases monotonically across the dividend yield categories, as one would expect. For the high-dividend portfolio, the dividend yield component represents approximately 41% of the portfolio total return (0.366/0.897), whereas the dividend yield component represents only 20% of the low-dividend portfolio return. The no-dividend portfolio reports a minuscule dividend yield (0.012%), which occurs because a small proportion of no-dividend companies initiated a dividend in the return measurement year.

With respect to portfolio risk, Table 2 contains two findings that are quite surprising. First, the no-dividend portfolio has by far the greatest volatility at 7.035%, which is significantly higher than that of each of the other portfolios. The no-dividend

portfolio even has significantly higher volatility than the extreme-dividend portfolio, which is presumed to be composed largely of financially distressed companies. Second, the no-dividend portfolio reports the lowest mean return yet has the greatest variance. In contrast, relative to the no-dividend portfolio, the high-dividend and extreme-dividend portfolios have considerably higher returns with significantly less risk. From Table 1, the mean *ex ante* dividend yield for high-dividend-yield stocks is 4.289%, which is on par with what investors with liquidity needs (e.g., retirees) typically seek. That these stocks provide both attractive income and low risk levels should be reassuring to such investors, many of whom are seeking both liquidity and safety.

The relatively high volatility of the no-dividend portfolio may be attributable to the nature of dividend-paying companies. Companies tend to initiate a dividend only after they have attained a certain level of development within their industry. Thus, the elevated risk level of the no-dividend portfolio may reflect a young-company effect, whereby the transition to paying a dividend signals that the company has passed into a more mature (safer) phase and is more likely to survive. Consistent with the young-company explanation, we found that 23% of companies in the no-dividend category have financial histories of three years or less in the database; for the low-, high-, and extreme-dividend categories, the values are 12%, 7%, and 9%, respectively.

The Sharpe ratios reported at the bottom of Table 2 confirm the performance benefits associated with dividends.¹³ The risk-adjusted performance is better

for all the dividend-paying portfolios relative to the no-dividend portfolio. The high-dividend portfolio achieves the highest risk-adjusted performance, which is considerably better than that of the no-dividend portfolio.

Overall, the evidence in Table 2 confirms the long-held favorable view of many investors regarding dividend-paying stocks. First, dividend-paying stocks can reduce portfolio risk significantly. Second, the reduction in risk is achieved without a corresponding reduction in returns. Of course, by evaluating before-tax returns, we are not considering the tax disadvantage of dividend-paying stocks for taxable investors. As noted earlier, by considering the separate return components, readers can estimate their particular after-tax return for each dividend category.

Dividend Yield and Company BE/ME. Table 3 reports the first part of our analysis of the interaction between dividend yield and equity style. Using one of the most common characterizations of investment style, BE/ME, we separated the sample into stocks with low BE/ME (growth), mid BE/ME (blend), and high BE/ME (value). Within each category, we further separated the sample into the four dividend yield portfolios: no dividend, low dividend, high dividend, and extreme dividend.¹⁴

The geometric mean (Panel A) and standard deviation (Panel B) are presented for each portfolio, whereas Panel C reports the combined return/risk attributes in the form of Sharpe ratios. Reading across the table facilitates a comparison across alternative dividend levels for each category of BE/ME. The first

Table 3. BE/ME and Dividend Yield Sorts

BE/ME Portfolio	Dividend Yield Portfolio			
	No	Low	High	Extreme
<i>A. Mean monthly return</i>				
Low BE/ME (growth), mean return	0.563%	0.749%	0.814%	0.558%
<i>t</i> -Statistic		1.15	1.11	-0.02
Dividend yield	0.007%	0.105%	0.255%	0.346%
Mid BE/ME (blend), mean return	0.978%	0.823%	0.910%	1.097%
<i>t</i> -Statistic		-1.11	-0.35	0.50
Dividend yield	0.014%	0.190%	0.372%	0.498%
High BE/ME (value), mean return	1.148%	1.070%	1.081%	0.995%
<i>t</i> -Statistic		-0.54	-0.48	-0.66
Dividend yield	0.031%	0.221%	0.419%	0.543%
<i>B. Standard deviation of monthly return</i>				
Low BE/ME, standard deviation	7.515%	5.217%	4.186%	7.960%
<i>F</i> -statistic		2.08**	3.23**	1.12
Mid BE/ME, standard deviation	6.705%	5.064%	4.158%	5.994%
<i>F</i> -statistic		1.75**	2.60**	1.25**
High BE/ME, standard deviation	6.747%	5.485%	4.601%	5.754%
<i>F</i> -statistic		1.51**	2.15**	1.37**
<i>C. Mean Sharpe ratio</i>				
Low BE/ME, Sharpe ratio	0.09	0.15	0.17	0.08
<i>t</i> -Statistic		1.64	1.66	0.23
Mid BE/ME, Sharpe ratio	0.17	0.18	0.21	0.20
<i>t</i> -Statistic		0.29	0.99	0.57
High BE/ME, Sharpe ratio	0.19	0.22	0.24	0.22
<i>t</i> -Statistic		0.89	1.20	0.52

Notes: This table reports the value-weighted geometric mean returns (Panel A), standard deviations (Panel B), and Sharpe ratios (Panel C) of portfolios formed on the basis of BE/ME and dividend yield (ttm). In Panels A and C, for each category of BE/ME, the results of three *t*-tests are reported, with the null hypothesis that the mean return (and Sharpe ratio) of the portfolio of non-dividend-paying stocks is equal to the mean return (and Sharpe ratio) of the portfolio of low-, high-, and extreme-dividend-paying stocks. Corresponding *F*-tests of the equality of the variances of the portfolios formed on the basis of dividend yield and BE/ME are reported in Panel B.

**Significant at the 1% level.

row in each panel provides the statistics for low-BE/ME companies (growth companies). The mean return increases monotonically from the no-dividend portfolio to the high-dividend portfolio before dropping off for the extreme portfolio. The increase in returns that accompanies the increase in the dividend yield would probably surprise most growth investors, whose investment decisions are usually based on the view that they are sacrificing current cash flows in exchange for future growth. Although the return differences are not statistically significant, generating a monthly extra return of 18.6 bps (0.749 – 0.563) or 25.1 bps (0.814 – 0.563) would be considered economically relevant by most investors.¹⁵

Reading down Panel A reveals the well-known value effect as returns increase monotonically from growth to blend to value companies.¹⁶ Surprisingly, the largest value premium (value return minus growth return) by far is that of the no-dividend portfolio. The value portfolio returns are more than double those of the growth portfolio, offering a monthly value premium of 58.5 bps (1.148% – 0.563%) versus 32.1, 26.7, and 43.7 bps, respectively, for the three other portfolios.

Panel B presents the risk characteristics of each portfolio. The standard deviations indicate that adding a dividend exposure (low or high) results in a substantial reduction in risk. For each investment style, risk reduction accompanies the move from the no-dividend portfolio to the low-dividend portfolio to the high-dividend portfolio. However, moving to an extreme dividend from a high exposure results in a risk increase. The lowest risk for a growth, blend, or value investor is obtained by investing in the high-dividend portfolios, which have standard deviations of 4.186%, 4.158%, and 4.601%. For the blend and value categories, the highest risk is generated by the no-dividend portfolio, whose risk is statistically significantly higher than that of the low- and high-dividend portfolios. Finally, comparing the first and third rows of standard deviations, we see that the value portfolios have more risk than the growth portfolios, excepting the no-dividend and extreme-dividend portfolios.

As an aid in evaluating the risk–return trade-off, Panel C reports the average Sharpe ratios. Importantly, we found that for all three style strategies (growth, blend, and value), adopting a dividend exposure improves risk-adjusted portfolio performance. The greatest improvement in performance occurs for the high-dividend growth portfolio, which has a Sharpe ratio of 0.17 versus the Sharpe ratio of 0.09 for the no-dividend portfolio.

Overall, the evidence in Table 3 highlights three important relationships between investment style and the benefits of dividends. First, whereas previous

research used the dividend yield to categorize companies as value or growth, we found that the dividend yield has additional explanatory power for portfolio performance within value/growth classifications. Second, growth investors should consider tilting their portfolios toward dividend-paying stocks. For growth investors, the no-dividend portfolio offers by far the lowest return along with the highest risk, which is clearly suboptimal. No-dividend growth stocks are probably immature, fast-growing companies that may entice growth investors to overpay. In options parlance, these stocks may be viewed as lottery tickets because of their potential for spectacular returns.¹⁷ By adding dividend exposure, growth investors can significantly reduce risk while increasing returns. Third, adding a dividend exposure reduces risk significantly, with the high-dividend portfolio offering the lowest risk level for each style.

Dividend Yield and Company Size. Another common style measure is market value of equity (ME), which is considered in Table 4. Reading across Panel A, we see that adding a dividend exposure enhances returns by approximately 5% a year for the small-cap and mid-cap strategies. In these cases, incorporating a low dividend exposure adds an impressive 43.2 bps (1.360 – 0.928) and 38.0 bps (1.119 – 0.739), respectively, to the monthly return earned by the no-dividend group. In addition to the economic significance of these values, both are highly statistically significant. The relative advantage of establishing a high dividend exposure is somewhat less beneficial for the small-cap portfolio (25.8 bps) but is comparably beneficial for the mid-cap portfolio (43.3 bps). Interestingly, the six highest-return portfolios are all in the dividend-paying small- and mid-cap classifications. Surprisingly, the return benefit of adding dividends for large-cap investors is relatively limited, with the greatest return enhancement being only 14.2 bps for a high dividend exposure. Overall, the returns in Panel A support the view that establishing a dividend exposure offers a noteworthy and consistent return benefit to small-cap and mid-cap investors.

As we read down Panel A, the well-documented small-firm effect becomes apparent: Small companies report the highest returns and large companies the lowest. Interestingly, the small-firm premium (small-cap return minus large-cap return) is least prominent for the no-dividend group (18.9 bps) and most prominent for the low-dividend group (58.5 bps).¹⁸ This evidence stands in stark contrast to the value premium, which is most prominent for the no-dividend group.

The standard deviations reported in Panel B of Table 4 confirm the ability of dividends to reduce portfolio risk. For each ME group, adding dividends

Table 4. ME and Dividend Yield Sorts

ME Portfolio	Dividend Yield Portfolio			
	No	Low	High	Extreme
<i>A. Mean monthly return</i>				
Low ME (small cap), mean return	0.928%	1.360%	1.186%	1.021%
<i>t</i> -Statistic		2.73**	1.43	0.45
Dividend yield	0.014%	0.170%	0.341%	0.443%
Mid ME (mid cap), mean return	0.739%	1.119%	1.172%	1.001%
<i>t</i> -Statistic		2.85**	2.31*	1.28
Dividend yield	0.013%	0.158%	0.346%	0.469%
High ME (large cap), mean return	0.739%	0.775%	0.881%	0.833%
<i>t</i> -Statistic		0.23	0.68	0.39
Dividend yield	0.012%	0.158%	0.363%	0.530%
<i>B. Standard deviation of monthly return</i>				
Low ME, standard deviation	7.514%	5.429%	4.589%	6.820%
<i>F</i> -statistic		1.92**	2.68**	1.21**
Mid ME, standard deviation	7.508%	5.597%	4.700%	5.781%
<i>F</i> -statistic		1.80**	2.56**	1.69**
High ME, standard deviation	7.048%	4.754%	3.943%	4.991%
<i>F</i> -statistic		2.20**	3.22**	1.99**
<i>C. Mean Sharpe ratio</i>				
Low ME, Sharpe ratio	0.10	0.30	0.29	0.17
<i>t</i> -Statistic		4.80**	3.76**	1.64
Mid ME, Sharpe ratio	0.10	0.23	0.28	0.20
<i>t</i> -Statistic		4.28**	3.55**	2.25*
High ME, Sharpe ratio	0.13	0.17	0.21	0.18
<i>t</i> -Statistic		1.16	1.70	1.00

Notes: This table reports the value-weighted geometric mean returns (Panel A), standard deviations (Panel B), and Sharpe ratios (Panel C) of portfolios formed on the basis of ME and dividend yield (ttm). In Panels A and C, for each category of ME, the results of three *t*-tests are reported, with the null hypothesis that the mean return (and Sharpe ratio) of the portfolio of non-dividend-paying stocks is equal to the mean return (and Sharpe ratio) of the portfolio of low-, high-, and extreme-dividend-paying stocks. Corresponding *F*-tests of the equality of the variances of the portfolios formed on the basis of dividend yield and ME are reported in Panel B.

*Significant at the 5% level.

**Significant at the 1% level.

reduces volatility significantly, with the largest reduction in the large-cap category. Consistent with the no-dividend category having a greater proportion of young, immature companies, the three no-dividend portfolios have the highest risk and the high-dividend portfolios have the lowest risk. Remarkably, for the three market-cap categories, the risk of the no-dividend portfolios exceeds even the risk of the extreme-dividend category. Apparently, paying a dividend signals that a company has attained a level of development that increases its odds for survival, thus reducing its risk.

The Sharpe ratios in Panel C confirm the substantial benefit to risk-adjusted performance associated with adding dividends. For five of six portfolios

in the small- and mid-cap categories, risk-adjusted performance improves significantly when dividends are part of the portfolio. The largest difference in performance from that of the no-dividend portfolio occurs for the small-cap portfolio with a low or high dividend exposure. In these cases, the additional reward to variability is a substantial 0.20 and 0.19, respectively. A comparable improvement in performance of 0.18 occurs for the high dividend exposure of the mid-cap portfolio. Compared with these values, the marginal improvement in performance for the large-cap portfolios is relatively meager.

The overall findings reported in Table 4 support three conclusions. First, small-cap and mid-cap investors gain a clear advantage by adding a

dividend tilt. For these investors, the addition of a dividend exposure results in a significant increase in returns, less risk, and greater liquidity. In contrast, for large-cap investors, adding a dividend exposure produces only a small gain in returns but does lower risk substantially. Small-cap companies are typically viewed as young companies with numerous promising projects that require the reinvestment of cash flow. Thus, it is surprising that dividends improve small-cap performance so dramatically. Second, the return benefit of dividends is largest for the small-cap and mid-cap portfolios, but the risk benefit is largest for the large-cap portfolios. This observation runs counter to the view that a dividend payment signals financial stability and thus would be more informative for smaller, less visible companies. Third, our results imply that the Dogs of the Dow strategy would be more effective if executed with stocks that have lower market caps, given that adding a dividend exposure produces a larger increase in returns for the small- and mid-cap portfolios.

Dividend Yield and Equity Style. Table 5 presents style portfolios formed on the basis of both BE/ME and ME, as in the traditional investment style grid. For expositional purposes, we report only six of the nine portfolios from the style grid (i.e., we exclude the performance of the three blend portfolios). Panel A reports the mean returns and standard deviations of the six portfolios across three alternative dividend exposures, and Panel B reports the Sharpe ratios. Given the small sample sizes in the extreme-dividend category, we omitted that category from our double-sort analysis.¹⁹

The mean returns (Panel A) suggest that the benefits of adding dividends vary tremendously by investment style. Remarkably, by increasing dividend exposure from none to high, the small-cap growth category more than quadruples its returns (0.182% to 0.778%) and mid-cap growth stocks increase returns roughly fourfold (0.229% to 0.913%). These increases are highly significant, both economically and statistically. Large-cap growth stocks see some improvement in returns by adding a high dividend exposure; however, the gain is somewhat limited and statistically insignificant. In contrast to the gains reported for growth stocks, the gains from adding a dividend exposure for value stocks are limited or nonexistent.

The standard deviations indicate that adding a dividend exposure reduces risk considerably across all the style portfolios. Moving from a low dividend exposure to a high exposure also reduces risk; in all cases, the high-dividend group has the lowest volatility. Somewhat surprisingly, the largest risk reduction from adding a dividend occurs for the mid-cap and large-cap growth portfolios. In contrast,

the smallest risk improvement occurs for the two small-cap portfolios.

The Sharpe ratios in Panel B of Table 5 confirm the substantial improvement in risk-adjusted performance from adding a dividend exposure to investment strategies targeting small- and mid-cap stocks. For seven of eight portfolios in these two categories, the reward to variability improves significantly when a dividend exposure is included. Somewhat surprisingly, the mid-cap category experiences the biggest gains in risk-adjusted performance. In contrast, the gains for the large-cap strategies are relatively muted.

Overall, the evidence in Table 5 supports three major propositions. First, small- and mid-cap non-dividend-paying growth stocks have very low realized returns, which may reflect the dividend clientele effect whereby growth investors and growth funds tend to target companies that pay no dividend.²⁰ As noted previously, a company's dividend yield is often used to classify the company into an equity style, and investment funds tend to be segmented by equity style. For example, growth funds may intentionally target companies of below-average size and above-average earnings retention rates because they are seen as offering better prospects for future growth. The combined evidence suggests that this strategy has proved abysmal. These two portfolios generate by far the lowest returns for investors (0.182% and 0.229%) yet subject investors to far greater risk (8.492% and 7.846%) than any of the dividend-paying portfolios. Second, long-short strategies that exploit style premiums seem more attractive when applied using non-dividend-paying stocks of average size or smaller. For instance, a strategy that relied on non-dividend-paying stocks and bought small-cap value stocks and sold small-cap growth stocks would have generated an extraordinary hedged return of 108.8 bps (1.270% – 0.182%) a month. A comparable strategy applied to mid-cap value and mid-cap growth stocks would have generated an almost equally impressive 106.4 bps (1.293% – 0.229%) a month. Note that shorting non-dividend-paying stocks is advantageous, because it avoids issues of funding the dividend on the short position. Third, reward-to-variability measures indicate that including a dividend exposure is most beneficial for small- and mid-cap strategies. For these portfolios, the gain in risk-adjusted return is statistically significant in seven of eight cases.

The results in Table 5 imply that no-dividend growth portfolios have particularly weak risk-adjusted performance relative to their dividend-paying counterparts. Depicting the advantage of adding dividends to growth portfolios over time, **Figure 1** plots Sharpe ratios associated with a high dividend exposure versus those with a no-dividend position. For illustrative purposes, Figure 1 depicts

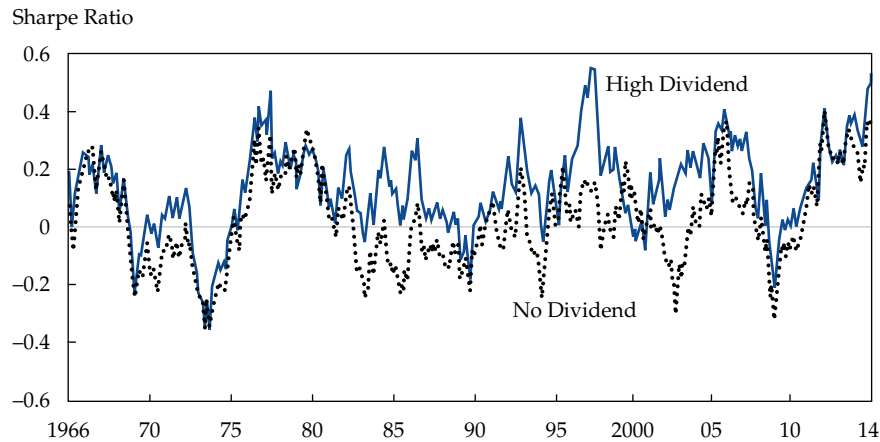
Table 5. Performance Data for Portfolios Formed on the Basis of BE/ME, ME, and Dividend Yield

Portfolio	No Dividend	Low Dividend	High Dividend
<i>A. Portfolio return and risk</i>			
Small-cap growth			
Mean return	0.182%	0.444%	0.778%
<i>t</i> -Statistic		1.07	2.17*
Standard deviation	8.492%	7.100%**	6.876%**
Small-cap value			
Mean return	1.270%	1.255%	1.347%
<i>t</i> -Statistic		-0.08	0.40
Standard deviation	7.252%	5.561%**	5.501%**
Mid-cap growth			
Mean return	0.229%	0.911%	0.913%
<i>t</i> -Statistic		4.40**	3.67**
Standard deviation	7.846%	5.994%**	5.251%**
Mid-cap value			
Mean return	1.293%	1.413%	1.378%
<i>t</i> -Statistic		0.89	0.51
Standard deviation	7.244%	5.502%**	4.828%**
Large-cap growth			
Mean return	0.664%	0.702%	0.804%
<i>t</i> -Statistic		0.22	0.59
Standard deviation	7.775%	5.173%**	4.169%**
Large-cap value			
Mean return	1.129%	1.036%	1.091%
<i>t</i> -Statistic		-0.53	-0.18
Standard deviation	7.141%	5.467%**	4.562%**
<i>B. Risk-adjusted performance</i>			
Small-cap growth			
Sharpe ratio	-0.02	0.05	0.12
<i>t</i> -Statistic		1.65	3.35**
Small-cap value			
Sharpe ratio	0.17	0.27	0.27
<i>t</i> -Statistic		2.26*	1.97*
Mid-cap growth			
Sharpe ratio	0.04	0.17	0.18
<i>t</i> -Statistic		4.71**	4.19**
Mid-cap value			
Sharpe ratio	0.20	0.31	0.34
<i>t</i> -Statistic		3.87**	3.26**
Large-cap growth			
Sharpe ratio	0.11	0.14	0.16
<i>t</i> -Statistic		1.04	1.28
Large-cap value			
Sharpe ratio	0.18	0.21	0.24
<i>t</i> -Statistic		0.88	1.46

Notes: This table reports the value-weighted geometric mean monthly returns, standard deviations, and Sharpe ratios of portfolios formed on the basis of BE/ME, ME, and dividend yield (tm). The results of *t*-tests are reported for each style portfolio, with the null hypothesis that the mean return (and Sharpe ratio) of the portfolio of no-dividend stocks is equal to the mean return (and Sharpe ratio) of the portfolio of low- and high-dividend-paying stocks. *F*-tests were also performed to identify differences in variance between no-dividend stocks and dividend-paying stocks.

*Significant at the 5% level.

**Significant at the 1% level.

Figure 1. Three-Year Rolling Sharpe Ratios

Note: This figure plots the 36-month rolling Sharpe ratios of the mid-cap growth portfolio with high dividend yield versus the no-dividend mid-cap growth portfolio.

the Sharpe ratios for only the no-dividend and high-dividend versions of the mid-cap growth portfolio. Using 36 months of data, we calculated the Sharpe ratios and rolled the calculations forward one month at a time for these two portfolios. This approach allowed us to examine the consistency of the performance improvement over the entire sample period.

The plots in Figure 1 support two basic contentions. First, adding a dividend exposure is generally advantageous over time. The Sharpe ratio for the high-dividend portfolio plots consistently above the no-dividend portfolio over most of the sample period. Periods of underperformance by the high-dividend portfolio are usually short, whereas the periods of outperformance span decades (e.g., the mid-1980s to the early 1990s and the early 2000s to the early 2010s). Second, Figure 1 makes clear that having a dividend exposure is not always beneficial. For example, the benefit turned negative during the tech bubble of the late 1990s. However, the benefit of establishing a dividend exposure prevails during most of the sample period. Interestingly, the advantage of pursuing a high dividend yield increased in the 1980s and early 1990s, when stock repurchases became more popular.²¹

Finally, **Table 6** presents the results of our attribution analysis to determine how much of the return advantage of high-dividend portfolios is due to allocation versus selection. For each of the 10 one-digit SIC (Standard Industry Classification) codes, **Table 6** reports the allocation effect, selection effect, benchmark weight, portfolio weight, and sector average dividend yield. Using no-dividend portfolios as the benchmark, we performed an attribution analysis in which the additional return from investing in high-dividend portfolios was cumulated over the 618 sample months.²² We separated the additional return into (1) an allocation effect from choosing particular

high-dividend sectors and (2) a selection effect from choosing high-dividend stocks within those sectors.

For the entire sample, the high-dividend portfolio has a cumulative return of 249.322% versus 111.293% for the no-dividend benchmark, which results in an additional cumulative return of 138.029%. Of this additional return, 77.858% is due to sector allocation and 60.162% is due to stock selection; thus, a high-dividend strategy results in allocations to superior return sectors and superior return stocks within those sectors.

Examining the benchmark and portfolio weights in **Table 6**, we see that the strategy overweights sectors with relatively high dividend yields. For example, the Food, Textiles, and Chemicals sector is overweighted by 24.56 percentage points (34.46% – 9.90%) and has an average dividend yield of 2.17%. This sector has a positive allocation effect and is the largest of all the allocation effects in the table. Of the 10 sectors examined, the allocation effect is positive for all but 2, suggesting that pursuing a high-dividend strategy results in allocations to attractive return sectors.

The selection effect is positive for 8 of the 10 sectors, indicating that the return advantage of high-dividend portfolios is pervasive across sectors and separate from sector allocations. For example, the Transportation, Communications, and Utilities sector has the highest dividend yield and a portfolio overweight. One might conclude that the favorable returns for a high-dividend strategy are due solely to overweights in this sector and other above-average dividend yield sectors. However, by separating the allocation and selection effects, we see that the allocation effect for this sector is negative. Its selection effect is positive and the largest of the 10 sectors, implying that choosing a high-dividend policy within this sector is especially advantageous. In 5

Table 6. Attribution Analysis of High-Dividend vs. No-Dividend Portfolios

Single-Digit SIC	Sector Description	Allocation Effect	Selection Effect	Benchmark Average Weight	Portfolio Average Weight	Sector Average Dividend Yield (ttm)
0	Agriculture	0.3425%	0.5915%	0.19%	0.06%	1.64%
1	Mining and Construction	19.700	13.982	6.46	3.05	1.44
2	Food, Textiles, Chemicals	43.449	22.894	9.90	34.46	2.17
3	Rubber, Equipment, Machinery	12.670	22.438	36.65	15.88	1.65
4	Transportation, Communications, Utilities	-6.165	33.214	10.11	22.77	3.58
5	Wholesale and Retail Trade	0.992	5.173	10.05	3.90	1.68
6	Finance, Insurance, Real Estate	13.738	2.217	6.04	14.06	2.69
7	Hotel, Recreation, Services	-26.727	-14.798	15.08	3.20	1.45
8	Health and Legal Services	13.231	0.702	3.23	0.15	0.91
9	Public Administration	<u>6.637</u>	<u>-26.252</u>	2.29	2.46	1.52
Total		77.858%	60.162%			
	High-dividend cumulative return (portfolio)	249.322%				
	No-dividend cumulative return (benchmark)	<u>111.293%</u>				
	Difference	138.029 pps				

Notes: This table shows the cumulative allocation and selection effects of a high-dividend investment strategy; the benchmark is a no-dividend investment strategy. Cumulated over the sample's 618 months, return differences are presented for the entire sample as well as by single-digit SIC code.

of the 10 sectors, the selection effect is greater than the allocation effect, suggesting that the investor's choice of high-dividend-yield stocks within a sector is more important than the choice of sector.

Two of the sectors show very meaningful but opposing contributions to the cumulative outperformance of the high-dividend portfolio. The combined return effects of the Food, Textiles, and Chemicals sector exceed 66% (43.449% + 22.894%), whereas the combined return effects of the Hotel, Recreation, and Services sector are roughly -42%. These very large but divergent metrics suggest that analysis of sector influence on performance and dividend yield may be a fruitful area for further research.

Conclusion

We evaluated the influence of dividends on the investment performance of the most prominent equity styles. Our findings support several conclusions. In general, focusing on dividend-paying stocks significantly reduces risk, independent of investment style. This finding is true for value and growth portfolios as well as small-, mid-, and large-cap portfolios. This risk reduction is also largely present when combining value/growth and size styles. Moreover, the high-dividend-yield portfolios, which consistently offer the least risk, provide an annual average dividend yield of 4.3%.

Our results have implications for specific investment styles. In addition to reducing risk, growth

investors could receive higher returns by focusing on dividend-paying stocks. It is particularly noteworthy that dividend-paying growth stocks have higher returns than nondividend payers, because it is often presumed that growth companies have high-return internal investment opportunities and thus dividend payments would detract from investor return. Our findings are consistent with Arnott and Asness (2003), who found that low dividend payouts do not imply higher future earnings growth. For value investors, an investment in dividend-paying stocks reduces risk without sacrificing return.

Examining style investing by market capitalization, we found that small- and mid-cap dividend payers have significantly less risk and higher returns than small- and mid-cap non-dividend-paying stocks. The observation that small- and mid-cap stocks have higher returns when a dividend is paid is surprising because these companies are usually thought to be better off reinvesting their earnings. The performance of non-dividend-paying small- and mid-cap growth portfolios has been abysmal. These portfolios report by far the lowest returns, and even worse, their risk exceeds that of all dividend-paying portfolios. The Sharpe ratios plotted in Figure 1 demonstrate a generally consistent risk-adjusted return benefit for high-dividend mid-cap growth stocks. With the exception of the late 1990s, which witnessed a tech bubble, the performance superiority of the high-dividend portfolio has been remarkably consistent over time. Attribution analysis confirms

that choosing high-dividend-yield stocks results in positive returns that are pervasive across sectors and independent of the sector chosen.

Our results have important implications for investment practitioners. We found that the choice of dividend level is crucial in determining the success of an investor's chosen investment style. For example, growth investors targeting average-size or below-average-size companies could have quadrupled returns by investing in high-dividend-yield stocks rather than no-dividend stocks. This remarkable increase in returns is accompanied by a substantial risk reduction. The dramatic impact of dividend exposure also shows up with respect to investors who exploit the value premium. When applied to no-dividend stocks, a long-short value/growth strategy targeting below-average-size companies would have generated an annual return of approximately 13%. Finally, our findings suggest that the Dogs of the Dow, a popular investment

strategy, would be more successful if applied to a group of stocks that included companies of average and below-average size.

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Notes

- Ilmanen (2011) found that from 1900 to 2009, dividends were the largest component of returns at 4.3%, with 1.3% contributed by real growth.
- Because companies are reluctant to cut dividends, investors view dividends as distinct from stock repurchases. Stock repurchase data are not readily available until after 1987, when FAS No. 95 was issued, so we did not examine stock repurchases in our study.
- See Easterbrook (1984) and Jensen (1986).
- For evidence supporting the strategy, see Siegel (2008); for counterevidence, see Hirschey (2000).
- See, for example, Graham and Dodd (1934) and Fama and French (1996).
- For evidence supporting the existence of dividend clienteles, see Grinstein and Michaely (2005).
- As measured for the S&P 500 Index, using Aswath Damodaran's website (http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/spearn.htm).
- We calculated dividend yields as the total dividend from July of year $t-1$ to June of year t divided by market capitalization as of the end of June in year t . Following Fama and French (1992), we dropped companies with negative book value. We also required companies to report at least 12 months of return data. With these exceptions, our sample includes all returns through the point of any corporate action resulting in a company delisting. Thus, our sample avoids issues of survivorship bias.
- We confirm that our results are robust to the use of 1%, 2%, 4%, and 10% cutoffs for the extreme classification.
- We also calculated arithmetic mean returns, which are comparable to the geometric mean returns reported here.
- To test for significance in geometric mean return differences, we followed Alf and Grossberg (1979).
- The Dogs strategy uses the 10 highest-dividend-yielding stocks in the DJIA; thus, our findings relate only tangentially to the strategy.
- For each portfolio, we calculated Sharpe ratios annually from July of year t to June of year $t+1$ (beginning in July 1963) using the arithmetic mean of excess returns. The averages of these Sharpe ratios are reported in the tables, along with tests of their differences.
- When making cross-sectional comparisons across portfolios, note that sorting by two or three variables that are correlated with one another creates classifications that make comparisons across portfolios difficult, at best. For example, a low-dividend stock could easily be a high-dividend small-cap growth stock, because relatively few small-cap growth stocks pay dividends.
- Taxes would clearly affect investor results. For example, assume an investor is subject to a 30% tax rate on dividends and a 0% tax rate on capital gains. For a growth investor, the after-tax return for the no-dividend portfolio would be $(0.563 - 0.007) + 0.007 \times (1 - 0.30) = 0.561\%$, whereas the after-tax return for the high-dividend portfolio would be $(0.814 - 0.255) + 0.255 \times (1 - 0.30) = 0.738\%$.
- In unreported t -tests, we found that the value premium is significant at the 5% level or better for all but the extreme-dividend portfolio.
- For a discussion of lottery preferences in stocks, see Ilmanen (2012).
- In separate t -tests, we found that the small-firm premium is statistically significant (at the 5% level or better) for the low- and high-dividend portfolios but is statistically insignificant for the two other portfolios.
- Our sort process (BE/ME [30%, 40%, 30%], ME [30%, 40%, 30%], dividend paying [50%]) created a relatively small number of companies in each portfolio. Therefore, the extreme portfolios often include fewer than five companies. So, we excluded the extreme portfolios from further analysis because the robustness of any results would be dubious, at best.
- In separate unreported tests, we found evidence suggesting that non-dividend-paying growth stocks can garner unusually high returns. Examining the portfolios' cross-sectional return statistics, we found that the skewness and kurtosis of non-dividend-paying stocks are larger than those of dividend-paying stocks in the small-cap and (to a lesser extent) mid-cap growth classifications. Investors may be induced to overpay for this potential.
- We also performed a Fama-MacBeth regression analysis to examine the robustness of our results. We found that dividend yield relates significantly to stock returns only after considering the interaction between dividend yield, BE/ME, and ME. For expositional purposes, this analysis is not reported here but is available upon request.
- To cumulate the effects, we used the methodology in Frongello (2002).

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