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International Evidence on the Payout Ratio, Earnings, Dividends, and Returns

Owain ap Gwilym, James Seaton, Karina Suddason, and Stephen Thomas

Recent evidence for the U.S. market has shown that, contrary to popular wisdom, the greater the proportion of earnings paid out as dividends, the greater the subsequent real earnings growth. This study extends previous work by examining whether a similar relationship exists in 11 international markets and by considering the role the payout ratio plays in explaining future real dividend growth and returns. Higher payout ratios do indeed lead to higher real earnings growth—but not to higher real dividend growth. This information has limited use, however, for predicting future returns.

Arnott and Asness (2003; hereafter A&A) established the somewhat surprising finding that higher aggregate dividend-payout ratios in the United States are associated with higher future earnings growth. This finding supports theories that view dividends as signals for earnings expectations. We have extended the work of A&A and others in two main ways:

- We investigated whether similar findings are evident in 11 major international markets.
- We extended the analysis to the relationship between the payout ratio and returns, which we believe to be important because returns are the ultimate focus of portfolio managers and investment strategists.

Although the payout ratio has long been of importance to corporate finance researchers (e.g., Lintner 1956), it has been relatively neglected in the asset-pricing and prediction literature (see McManus, ap Gwilym, and Thomas 2004; ap Gwilym, Seaton, and Thomas, forthcoming 2005)—despite market fascination with investment strategies based on dividends and earnings (e.g., the "Dow 10" strategy).[1] A&A redressed this omission in the literature by examining the aggregate payout ratio for U.S. stocks since 1871 and its relationship to subsequent 10-year real earnings growth. They found a positive coefficient on the payout ratio in a simple linear regression for a variety of subperiods and suggested that the low payout ratio of 2001 would lead to low earnings growth in the following decade. In their analysis of 5-year earnings growth and a rolling 30-year period, they found that these results are robust.

Because dividends are "stickier" (more stable over time) than earnings, A&A also examined whether the phenomenon is actually reflecting mean reversion in earnings; a transient drop in earnings would raise the payout ratio and signal a future rebound in earnings, implying that dividend policy is not really useful as a predictor. They tested this question empirically by including past real earnings growth in the regression, but the hypothesis that the payout ratio is reflecting mean reversion in earnings was comprehensively rejected. Other possible predictor market variables (such as the yield-curve slope and earnings yield) were included, but the inference remained the same: A high payout ratio is associated with high subsequent earnings growth.

Market strategists are also paying more attention to dividends and payout ratios as the markets enter an era that many believe may be unexciting for equities (see Perkins and Gavrina 2004). With the global dividend yield declining from more than 5 percent in the 1980s to less than 2 percent by the late 1990s and with the payout ratio peaking in the early 1990s but currently low, investors are being reminded of the importance of dividends to long-run total returns. Low payout ratios at least

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allow the possibility, other things being equal, of payment hikes.

A primary focus of this article is whether the U.S. findings extend to other countries. A&A suggested that their findings

> conform to a world in which managers possess private information that causes them to pay out a large share of earnings when they are optimistic . . . and to pay out a small share when they are pessimistic. . . . Alternatively, the facts also fit a world in which low payout ratios lead to . . . inefficient empire building. (p. 84)

Given the different managerial cultures, financial market histories, and corporate and individual tax regimes of countries, we believed, before our study, that to discover the U.S. findings repeated in other countries would be quite remarkable.[2]

In assessing the historical evidence that expected future earnings growth is fastest when the current payout ratio is high and slowest when the payout ratio is low, A&A applied the Miller and Modigliani (1961) "dividend irrelevance" theorem, which states that the value of a firm is completely independent of the proportion of earnings retained by that firm. Miller and Modigliani's work established that in a frictionless world, when the investment policy of a firm is held constant, its dividend-payout policy has no consequences for shareholder wealth. Nevertheless, Lintner found that companies follow deliberate dividend-payout strategies.

Several explanations of this dividend puzzle have been suggested. One popular theory is that companies can signal future profitability by paying dividends (Bhattacharya 1979). Recent evidence on this proposition is mixed; DeAngelo, DeAngelo, and Skinner (1996) and Bernartzi, Michaely, and Thaler (1997) showed that current dividend changes do not help predict companies' future earnings growth. Another viewpoint is that dividend policies address agency problems between corporate insiders and outside shareholders. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) analyzed two models designed to address this issue. In the "outcome" model, the hypothesis was that dividends are paid because minority shareholders pressure corporate insiders to pay out cash; hence, strong minority rights should be associated with higher payouts. In the "substitute" model, insiders interested in issuing equity in the future pay dividends to establish a reputation for decent treatment of minority shareholders; hence, strong shareholder protection may mean high payouts are not required to establish credibility. In other words, the quality of shareholder protection is seen as a proxy for agency costs. La Porta et al. found that dividend policies vary across countries in a way consistent with the outcome agency model. They devised a shareholder rights table (see La Porta et al. 1998) in which the "common law" countries of the United States and the United Kingdom scored high on shareholder protection. Among the "civil law" countries, Italy and Germany scored at the bottom; Greece, Switzerland, and the Netherlands scored somewhat better, followed by Portugal and France, and then, Spain and Japan.

Data and Methodology

We studied 11 countries: France, Germany, Greece, Italy, Japan, the Netherlands, Portugal, Spain, Switzerland, the United Kingdom, and the United States. They were chosen on the basis of availability of data from the 30 countries in the Organization for Economic Cooperation and Development to represent the industrialized world.

The data required for each country were monthly values of dividend yield, earnings yield, a retail price index or consumer price index (as appropriate), and the stock market index level. The source was Datastream.

For each country, we chose an index to represent the country's aggregate equity market. To facilitate comparisons with the A&A findings, we used the S&P 500 Index for the United States. For Germany, we used the DAX 30 because the total market index lacked some earnings yield data. We encountered the same problem for Spain, so we used the MADRIDZ. For the rest of the countries, we used a total market index. For the United Kingdom and the United States, we had observations from January 1965 through December 2004, whereas for France, Germany, Japan, the Netherlands, and Switzerland, observations begin with January 1973. Italy's first month of data is January 1986, and Spain's is January 1987. Observations for both Greece and Portugal start in 1990. All observations end in December 2004.

Following the procedure of A&A, we used the earnings yield series to estimate a history of 12-month trailing earnings in index points for each country. First, the earnings yield series was multiplied by the price series. To obtain a real earnings series, the earnings series was divided through by the retail price index. The same process was applied to the dividend yield to create a real dividend series. The payout ratio was defined as the ratio of one-year trailing dividends to one-year trailing earnings. An important issue with these indices is that their composition will vary over time. A&A pointed out that the aggregate EPS

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series is not the same as the earnings growth on a static portfolio. Higher-performing stocks will replace lower-performing stocks in the index, and each time rebalancing occurs to account for new listings, the divisor of the index will increase. This process causes the total earnings of the index as well as EPS to decrease; the end result is that EPS cannot keep pace with the growth experienced by the economy as a whole (GDP growth).

We also constructed, in accord with the method used by Fama and French (1998), a return series for each country's index. We assumed that dividends were reinvested at the end of 12-month periods for all return periods in excess of one year. The formula for calculating the return on the index was

$$R_n = \left[\frac{P_2\left(1+d_2\right)}{P_1}\right] - 1,$$

where R_n is the nominal 12-month return, P_1 and P_2 are the price levels at, respectively, the beginning and end of the 12-month period, and d_2 is the dividend yield at the end of the period expressed as a decimal. We then calculated the real return series by subtracting the change in inflation over the period from the nominal return. Return horizons of 1, 5, and 10 years were used.

Because of the differing periods for which data were available by country, the study focused on three periods of matched data. The United Kingdom and the United States, which had the most observations available, are in three time periods: 1965–2004 (Period 1), 1973–2004 (Period 2), and 1990–2004 (Period 3). France, Germany, Japan, the Netherlands, and Switzerland are in the last two time periods. The remaining countries—Greece, Italy, Portugal, and Spain—are only in the last period. For the longest time period, we estimated rolling 10- and 5-year regressions. Thus, for example, those regressions on the U.K. Total Market Index are of the 10-year and 5-year real earnings growth (REG) or real dividend growth (RDG) regressed on the payout ratio (PR) for the period 1965–2004. For the second time period, 1973–2004, 5-year REG, RDG, or real returns were used. For example, for France, we regressed 5-year real returns on the payout ratio to investigate the relationship between those two variables over the 1973–2004 period. (Both the 10-year and 5-year periods are consistent with the approach of A&A.) For the last time period, 1990–2004, we used 1-year real returns, REG, or RDG as the dependent variable.

We investigated the explanatory power of the following variables: the payout ratio, the dividend yield, the earnings yield, lagged dividend growth, and lagged earnings growth. For the lagged variables, in the first time period, we lagged real earnings or dividend growth by 10 years and 5 years, whereas for the second time period, we used 5-year lags.

We ran these regression models for all the countries. As additional tests, for 1973–2004 and 1990–2004, we also created "World" indices—both equally weighted and value weighted—that included all of the countries in our sample for a particular period. The value-weighted series were created by assigning a set of weights based on each country's market value expressed in U.S. dollars.[3] All returns for these indices were calculated from the perspective of a U.S. dollar investor.

The summary statistics computed for the payout ratio for all countries for the three time periods are displayed in **Table 1**. Panel A reveals that for the longest period, the United Kingdom had higher maximum, minimum, mean, and median payout ratios than the United States. Although the differences are not substantial, this finding confirms that a culture of paying dividends is more evident in the United Kingdom than in the United States. The compound annual real growth in earnings and dividends in the United States and the United Kingdom is similar.

Panel B presents the same statistics and growth rates for the 1973–2004 period and includes the equal-weighted World index (EW) and value-weighted World index (VW) for the seven countries. The mean payout ratio ranges from 0.27 for Switzerland to 0.53 for the United Kingdom. The highest maximum payout ratio is, again, for the United Kingdom, and the lowest minimum value for the ratio is for Switzerland. The median payout ratios range from 0.27 to 0.54, with Switzerland's noticeably lower than the others. Japan has the lowest compound annual real growth in dividends and earnings. France has the highest annual real growth rate in earnings and dividends in this sample. The equal-weighted World index has higher growth rates than the value-weighted index, reflecting outperformance of the smaller markets.

Panel C details the findings for the 1990–2004 period—with four new countries added to those of Panel B. As in Panels A and B, the United Kingdom has the highest mean and maximum payout ratios. Portugal has the lowest minimum payout ratio. The mean and median payout ratios have similar ranges. The data indicate that all the countries except Japan had positive earnings growth over the 1990–2004 period. The positive growth rates range from 1.00 percent (Portugal) to 8.95 percent (Greece). Dividend growth was also positive—except for the United Kingdom. Dividend growth rates for the remaining markets varied from 0.21

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Table 1. Summary Statistics

	Payout Ratio				Compound Annual Real Growth	
Country	Max.	Min.	Mean	Median	Earnings	Dividend
A. 1965–2004						
United Kingdom	0.83	0.33	0.56	0.58	2.26%	1.17%
United States	0.77	0.29	0.50	0.49	2.22	1.14
B. 1973–2004						
France	0.69	0.29	0.45	0.45	5.75%	4.85%
Germany	0.69	0.21	0.38	0.37	4.40	0.90
Japan	0.52	0.26	0.38	0.38	0.43	–0.68
Netherlands	0.61	0.29	0.48	0.48	4.01	2.94
Switzerland	0.44	0.20	0.27	0.27	2.80	3.18
United Kingdom	0.83	0.33	0.53	0.54	2.25	1.46
United States	0.77	0.29	0.49	0.46	2.69	1.53
EW7	0.52	0.35	0.43	0.42	3.94	2.28
VW7	0.60	0.34	0.45	0.44	2.72	1.30
C. 1990–2004						
France	0.57	0.32	0.44	0.44	3.66%	7.03%
Germany	0.48	0.21	0.32	0.31	2.87	1.29
Greece	0.61	0.12	0.39	0.43	8.95	12.78
Italy	0.69	0.25	0.46	0.49	1.87	4.11
Japan	0.52	0.26	0.39	0.38	–0.35	0.21
Netherlands	0.61	0.40	0.50	0.50	4.48	3.99
Portugal	0.68	0.02	0.45	0.47	1.00	3.72
Spain	0.55	0.31	0.42	0.42	2.23	2.91
Switzerland	0.44	0.21	0.28	0.27	5.45	6.83
United Kingdom	0.83	0.45	0.61	0.60	1.02	–0.02
United States	0.77	0.29	0.49	0.44	4.00	1.92
EW11	0.50	0.35	0.43	0.43	5.28	4.45
VW11	0.59	0.34	0.46	0.44	2.87	2.06

percent (Japan) to 12.78 percent (Greece). Consistent with the findings in Panel B, the EW11 had higher growth rates than the VW11.

Although the average payout ratios do not rank the country markets precisely according to the rankings by agency problems reported by La Porta et al. (2000), and indeed agency issues were not the main focus of the present study, the general consistency between payout ratios and lack of agency problems cannot be ignored. The United Kingdom and the United States have high payouts, whereas Greece, Switzerland, and Germany have low shareholder protection and low payouts. The patterns for the remaining countries are less clear.[4]

Regression Results

In this section, we report our findings on the relationships between the dividend-payout ratio and earnings growth, dividend growth, and equity market returns.

Payout Ratio and Earnings Growth. Table 2 demonstrates the extent to which PR can explain subsequent REG, in each of the three data periods, for 10-year, 5-year, or 1-year subsequent earnings growth. In Panel A, coefficients on the PR variable are positive with some statistical significance. This result is consistent with A&A but inconsistent with the "traditional" view that higher retention of earnings leads to higher subsequent growth. The explanatory power of the U.S. regressions, with adjusted R^2 values of 28.3 percent and 40.4 percent, is reasonable; the R^2 values for the United Kingdom are markedly lower.

In Panel B, as in Panel A, all the PR coefficients are positive; all but the coefficient for Germany are significant. The explanatory power of the regressions, however, differs considerably. France, Japan, the United States, and the value-weighted World index have reasonably high adjusted R^2 values, but the remaining countries (particularly Germany, the Netherlands, and Switzerland) do not.

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Table 2. Subsequent Real Earnings Growth as a Function of Payout Ratio
(*t*-statistics in parentheses)

Country	Constant	PR	Adjusted R^2
A. 1965–2004			
10-year subsequent real earnings growth			
United Kingdom	0.00	0.03	7.8%
	(0.33)	(2.31)	
United States	–0.08	0.19	28.3
	(–3.61)	(4.07)	
5-year subsequent real earnings growth			
United Kingdom	–0.05	0.13	17.4%
	(–2.59)	(3.70)	
United States	–0.21	0.45	40.4
	(–5.70)	(6.22)	
B. 1973–2004: 5-year subsequent real earnings growth			
France	–0.13	0.42	25.9%
	(–4.02)	(5.95)	
Germany	0.02	0.06	0.3
	(0.68)	(0.88)	
Japan	–0.20	0.52	31.7
	(–4.80)	(5.18)	
Netherlands	–0.03	0.16	5.4
	(–0.93)	(2.01)	
Switzerland	–0.12	0.57	8.6
	(–2.95)	(3.80)	
United Kingdom	–0.06	0.15	17.8
	(–2.68)	(3.49)	
United States	–0.23	0.51	49.3
	(–7.30)	(8.25)	
EW7	–0.18	0.49	18.6
	(–3.17)	(3.76)	
VW7	–0.29	0.67	55.9
	(–9.66)	(10.28)	
C. 1990–2004: 1-year subsequent real earnings growth			
France	–0.89	2.15	42.0%
	(–7.61)	(7.96)	
Germany	–0.07	0.36	0.6
	(–0.33)	(0.57)	
Greece	0.05	0.08	–0.5
	(0.33)	(0.23)	
Italy	0.08	–0.09	–0.3
	(0.80)	(–0.38)	
Japan	–0.40	1.01	14.6
	(–3.85)	(4.02)	
Netherlands	–0.63	1.34	15.6
	(–2.71)	(2.81)	
Portugal	–0.63	1.46	25.1
	(–4.75)	(4.63)	
Spain	–0.18	0.48	4.6
	(–1.29)	(1.36)	
Switzerland	–0.36	1.49	9.4
	(–1.46)	(1.65)	
United Kingdom	–0.26	0.45	8.2%
	(–2.44)	(2.59)	
United States	–0.36	0.88	13.3
	(–2.40)	(2.84)	
EW11	–0.35	0.90	6.7
	(–1.76)	(1.96)	
VW11	–0.55	1.28	17.3
	(–2.72)	(2.77)	

The results shown in Panel C of Table 2 are consistent with those of the previous panels: All of the markets except Italy display positive PR coefficients. Again, the explanatory power varies from country to country, with Germany, Greece, Italy, and Spain having particularly low values. Overall, across various earnings growth horizons and for a number of countries, the evidence clearly points to the existence of a positive relationship between payout ratios and real earnings growth.

As an additional test of the relationship between the two, we considered whether countries with higher payout ratios deliver higher subsequent real earnings growth. **Table 3** shows the REG experienced by an investor who at the beginning of each year ranked the seven individual markets available between 1973 and 2004 according to PR and invested in the same ranking each year. For example, rank #1 captures the REG of an investment in the lowest-PR country at the beginning of each annual period and rank #7 represents an investment in the highest-PR country each year. The results show that investing in a country with a high PR leads to higher REG than does investing in low-PR markets, but the relationship is not monotonic. The final column of Table 3 shows that the average annual difference between investing in the highest-PR and the lowest-PR markets was 5.3 percentage points (pps), although this difference was significant only at the 90 percent level. If an investor had taken a 50 percent long position in each of #6 and #7 and a 50 percent short position in each of #1 and #2, however, the REG difference would have been 5.6 pps, which, with a *t*-statistic of 2.28, would be significant at the 95 percent level.

The ability to explain future earnings growth may be improved by introducing the overall valuation of the aggregate stock market into the model. For example, at the individual stock level, Barth, Elliott, and Finn (1999) found that companies with track records of consistent earnings growth achieve higher P/E multiples than companies with patchy earnings records. The presumption is that

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Table 3. Average Arithmetic Annual Real Earnings Growth for Markets Ranked Annually by Payout Ratio, 1973–2004

#1 (low PR)	#2	#3	#4	#5	#6	#7 (high PR)	#7 – #1
1.4%	0.7%	3.4%	5.9%	6.9%	6.7%	6.7%	5.3 pps (t-statistic = 1.84)

the market anticipates that the consistent performers will continue to deliver stellar earnings growth. Given that the aggregate market discounts future prospects, one would expect earnings yield to be negatively related to subsequent real earnings growth.

Table 4 presents results of regressions containing earnings yield (EY) and payout ratio at the beginning of each period as the explanatory variables for real earnings growth. Panel A indicates that the inclusion of EY generally produced a modest improvement over Table 2 in the explanatory power of the regressions for the United Kingdom and the United States. The predominance of negative coefficients for EY is consistent with the hypothesis. Despite the inclusion of EY, PR retains its positive coefficient, albeit with reduced statistical significance.

For the countries and period reflected in Panel B, the use of EY also raised adjusted R^2 values. The coefficients on EY are negative in five of the markets and are significant for France, Germany, and Switzerland. Again, PR retains a positive relationship with REG in all cases, with generally high levels of significance.

The impact of EY is most noticeable in the regressions reported in Panel C for all 11 markets. Compared with Table 2, a significant improvement in the explanatory power is notable. EY demonstrates strongly negative coefficients for most countries. PR has a positive coefficient for all markets except Greece and Italy and is statistically significant in seven country markets plus both World indices, although generally the results appear less conclusive than they are for the five-year regressions.

The implication of Table 4 is that the inclusion of EY does not detract in any meaningful way from the positive relationship previously observed between dividend-payout ratio and real earnings growth. This finding is consistent with the findings of A&A for the U.S. market. Regressions that contained earnings yield improved in explanatory power over those using PR alone, but the effect is most noticeable in the short (one-year) regressions.

A final possibility we considered is that the payout ratio may merely be proxying for depressed or inflated earnings (see A&A, p. 76). Dividends are generally considered to be a much smoother time series than earnings. Therefore, in recessionary periods, earnings may be low relative to dividends, resulting in a high PR, whereas in a period of high growth, the converse may be true. If mean reversion in earnings occurs, it would be consistent with our previous observation that a high payout ratio (i.e., low earnings) results in high subsequent earnings growth whereas a low payout ratio (i.e., high earnings) leads to low subsequent earnings growth. To attempt to test the idea that the payout ratio serves as a proxy for high/low earnings, we ran regressions in which the independent variable was PR and the dependent variable was lagged earnings growth (LEG).[5]

Table 5 presents the results of these regressions. The coefficients on both 10-year lagged earnings growth (LEG_{10} in Panel A for 1975–2004) and 5-year lagged earnings growth (LEG_5 in Panel B for 1970–2004) are negative, which is consistent with the hypothesis of depressed earnings reverting to a mean, although only the U.K. LEG_5 coefficient is significant. The introduction of the lagged growth variables improves the explanatory power somewhat compared with Table 2, but the PR coefficients remain positive and significant. In Panel C for 1978–2004, the coefficients on LEG_5 are statistically significant except those for the United States and Switzerland and all are negative except the coefficient for Japan. Despite this result, the PR coefficients retain positive signs in all but two markets, and many are still significant. Lagged earnings growth seems to have some role to play in explaining subsequent earnings growth, particularly for the five-year horizon. The 10-year results appear to be more consistent with the findings of A&A, who noted that although lagged earnings growth had the anticipated negative sign in their results, the predictive ability of the variable was poor and it failed to materially diminish the role of the payout ratio, particularly in 1946–2001.

Payout Ratio and Dividend Growth. The positive relationship we reported in the previous section between the dividend-payout ratio and real earnings growth failed to conform to conventional wisdom but was consistent with the U.S. evidence presented by A&A. In this section, we report an extension of our analysis that considered whether a similarly unexpected relationship exists

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Table 4. Subsequent Real Earnings Growth as a Function of Payout Ratio and Earnings Yield
(*t*-statistics in parentheses)

Country	Constant	PR	EY	Adjusted R^2
A. 1965–2004				
10-year subsequent real earnings growth				
United Kingdom	0.01	0.02	–0.05	8.3%
	(0.77)	(0.98)	(–0.66)	
United States	–0.01	0.10	–0.30	41.2
	(–0.30)	(1.42)	(–1.76)	
5-year subsequent real earnings growth				
United Kingdom	–0.08	0.16	0.09	17.7%
	(–1.57)	(2.75)	(0.43)	
United States	–0.18	0.42	–0.21	31.7
	(–2.97)	(4.49)	(–1.76)	
B. 1973–2004: 5-year subsequent real earnings growth				
France	–0.04	0.38	–0.82	36.0%
	(–1.21)	(4.64)	(–3.47)	
Germany	0.09	0.10	–1.21	8.5
	(2.31)	(1.48)	(–2.50)	
Japan	–0.21	0.52	0.27	31.9
	(–5.02)	(5.23)	(0.62)	
Netherlands	0.06	0.02	–0.33	10.4
	(0.95)	(0.21)	(–1.80)	
Switzerland	0.01	0.48	–1.15	27.4
	(0.11)	(3.11)	(–3.35)	
United Kingdom	–0.12	0.22	0.23	20.3
	(–1.97)	(3.01)	(0.86)	
United States	–0.19	0.46	–0.32	51.4
	(–3.33)	(5.69)	(–1.45)	
EW7	–0.15	0.46	–0.23	19.8
	(–2.31)	(3.31)	(–1.31)	
VW7	–0.30	0.67	0.37	56.6
	(–9.48)	(11.26)	(1.14)	
C. 1990–2004: 1-year subsequent real earnings growth				
France	–0.42	1.54	–2.96	50.1%
	(–1.93)	(4.11)	(–2.53)	
Germany	0.04	0.29	–1.39	1.2
	(0.16)	(0.47)	(–0.60)	
Greece	0.58	–0.03	–6.74	38.8
	(3.54)	(–0.14)	(–6.46)	
Italy	0.40	–0.10	–5.77	14.6
	(2.43)	(–0.40)	(–3.09)	
Japan	–0.35	0.95	–1.35	14.2
	(–1.35)	(2.99)	(–0.17)	
Netherlands	–0.40	1.33	–3.47	29.0
	(–1.99)	(3.55)	(–3.32)	
Portugal	–0.51	1.25	–0.29	26.0
	(–2.79)	(3.11)	(–1.13)	
Spain	–0.05	0.66	–2.88	36.5
	(–0.36)	(2.15)	(–5.64)	
Switzerland	0.25	0.46	–5.54	22.8
	(0.89)	(0.51)	(–4.58)	

(continued)

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Table 4. Subsequent Real Earnings Growth as a Function of Payout Ratio and Earnings Yield (continued)
(*t*-statistics in parentheses)

Country	Constant	PR	EY	Adjusted R^2
United Kingdom	–0.13	0.49	–2.59	16.2%
	(–0.96)	(2.90)	(–2.21)	
United States	–0.04	0.89	–7.49	22.3
	(–0.20)	(2.79)	(–2.27)	
EW11	–0.12	0.91	–4.65	21.5
	(–0.56)	(2.25)	(–3.60)	
VW11	–0.49	1.78	–14.52	22.3
	(–2.41)	(3.82)	(–2.55)	

between the payout ratio and subsequent real dividend growth. A commonly accepted implication of Miller and Modigliani is that a high payout ratio leads to low subsequent real dividend growth unless the company's funds are replenished by stock issuance, and vice versa. For example, a 100 percent PR would almost certainly result in underinvestment in the company's ongoing business

Table 5. Subsequent Real Earnings Growth as a Function of Payout Ratio and Lagged Earnings Growth
(*t*-statistics in parentheses)

Country	Constant	PR	Lagged Earnings Growth (LEG)	Adjusted R^2
A. 1975–2004: 10-year subsequent real earnings growth				
United Kingdom	0.01	0.03	–0.09	11.0%
	(1.00)	(3.01)	(–0.72)	
United States	–0.07	0.17	–0.18	29.1
	(–2.03)	(2.51)	(–0.59)	
B. 1970–2004: 5-year subsequent real earnings growth				
United Kingdom	–0.02	0.09	–0.64	56.8%
	(–0.89)	(3.03)	(–8.67)	
United States	–0.18	0.41	–0.18	48.4
	(–4.58)	(5.19)	(–1.36)	
C. 1978–2004: 5-year subsequent real earnings growth				
France	0.16	–0.15	–0.98	76.0%
	(4.37)	(–1.89)	(–12.38)	
Germany	0.16	–0.22	–0.87	63.2
	(4.01)	(–1.95)	(–10.35)	
Japan	–0.47	1.28	0.86	50.5
	(–6.32)	(6.42)	(4.82)	
Netherlands	–0.02	0.17	–0.37	27.1
	(–0.55)	(2.54)	(–3.93)	
Switzerland	0.01	0.18	–0.25	10.1
	(0.21)	(0.76)	(–1.41)	
United Kingdom	–0.02	0.10	–0.64	57.1
	(–0.98)	(2.89)	(–9.11)	
United States	–0.22	0.48	–0.15	53.2
	(–5.96)	(6.93)	(–1.25)	
EW7	–0.09	0.33	–0.58	55.5
	(–1.71)	(2.94)	(–5.17)	
VW7	–0.18	0.44	–0.44	65.6
	(–5.51)	(6.26)	(–3.49)	

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and produce no RDG in the long run, whereas a low PR might allow the company to undertake many projects with positive net present values and thus raise subsequent RDG.

Table 6 reports the results of regressions akin to those reported in Table 2 but with RDG as the dependent variable. Panel A reveals a negative and statistically significant relationship between PR and 10-year subsequent RDG; the adjusted R^2 value is particularly high for the United Kingdom. Results for the five-year RDG in Panel A and the results shown in Panel B are similar. All the country markets except the United States have negative PR coefficients; the World indices also have positive coefficients. In Panel B, PR has some explanatory power related to RDG for the United States, France, and Germany but not for the other markets. Panel C indicates that, as found for the longer growth horizons, a high proportion of these markets show a negative relationship between PR and RDG. The explanatory power varies considerably from country to country. Overall, the evidence presented in Table 6 points to PR and subsequent RDG being negatively related. Unlike our findings for PR as related to REG, the relationship we found between PR and RDG concurs with conventional wisdom.

Table 6. Subsequent Real Dividend Growth as a Function of Payout Ratio
(*t*-statistics in parentheses)

Country	Constant	PR	Adjusted R^2
A. 1965–2004			
10-year subsequent real dividend growth			
United Kingdom	0.14	–0.21	58.4%
	(8.23)	(–7.33)	
United States	0.03	–0.04	4.5
	(3.38)	(–2.50)	
5-year subsequent real dividend growth			
United Kingdom	0.10	–0.15	0.1%
	(3.93)	(–3.38)	
United States	–0.01	0.03	0.8
	(–0.72)	(1.05)	
B. 1973–2004: 5-year subsequent real dividend growth			
France	0.12	–0.15	7.6%
	(4.25)	(–2.76)	
Germany	0.10	–0.22	11.3
	(3.57)	(–3.28)	
Japan	0.02	–0.06	2.5
	(0.98)	(–1.49)	
Netherlands	0.13	–0.18	5.7
	(2.55)	(–1.84)	
Switzerland	0.10	–0.22	1.3
	(2.74)	(–1.56)	
United Kingdom	0.07	–0.07	4.1%
	(2.97)	(–1.85)	
United States	–0.03	0.09	14.2
	(–2.52)	(3.56)	
EW7	0.01	0.03	–0.2
	(0.32)	(0.28)	
VW7	–0.03	0.10	7.2
	(–2.20)	(2.90)	
C. 1990–2004: 1-year subsequent real dividend growth			
France	–0.21	0.64	6.9%
	(–1.32)	(1.66)	
Germany	0.48	–1.41	34.5
	(4.13)	(–4.09)	
Greece	0.70	–1.42	50.4
	(8.78)	(–7.52)	
Italy	0.51	–0.98	16.6
	(3.43)	(–3.15)	
Japan	0.04	–0.10	0.7
	(1.10)	(–1.49)	
Netherlands	0.35	–0.61	12.9
	(3.60)	(–3.19)	
Portugal	0.54	–1.08	21.2
	(6.35)	(–6.24)	
Spain	0.35	–0.78	10.4
	(2.13)	(–2.16)	
Switzerland	0.52	–1.59	13.9
	(2.56)	(–2.17)	
United Kingdom	0.11	–0.18	5.3
	(2.51)	(–2.63)	
United States	–0.04	0.11	2.3
	(–1.01)	(1.37)	
EW11	0.26	–0.48	4.9
	(2.22)	(–1.88)	
VW11	–0.02	0.08	0.2
	(–0.32)	(0.57)	

The possibility remains, however, that a market's overall valuation plays a part in explaining the relationship between PR and RDG in that market, in the same way market valuation plays a role in the relationship of PR and REG. To explore this possibility, we ran regressions for the three periods in which we used dividend yield (DY) at the beginning of the period as an additional variable to proxy for overall market valuation. **Table 7** reports the results. Panel A offers mixed evidence: PR has negative coefficients for the U.K. market but positive coefficients for the U.S. market. The U.S. market also exhibits a positive coefficient in the five-year regression results shown in Panel B. Five of the markets, however, show a negative relationship between

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Table 7. Subsequent Real Dividend Growth as a Function of Payout Ratio and Dividend Yield
(*t*-statistics in parentheses)

Country	Constant	PR	DY	Adjusted R^2
A. 1965–2004				
10-year subsequent real dividend growth				
United Kingdom	0.14	–0.21	0.00	58.4%
	(5.52)	(–7.66)	(–0.29)	
United States	–0.03	0.01	0.01	16.8
	(–1.65)	(0.70)	(3.69)	
5-year subsequent real dividend growth				
United Kingdom	0.04	–0.11	0.01	19.8%
	(1.09)	(–2.73)	(1.65)	
United States	–0.01	0.03	0.00	0.7
	(–0.77)	(1.07)	(0.42)	
B. 1973–2004: 5-year subsequent real dividend growth				
France	0.14	–0.04	–0.02	32.0%
	(4.87)	(–0.50)	(–4.78)	
Germany	0.10	–0.05	–0.02	15.9
	(3.45)	(–0.67)	(–2.37)	
Japan	0.02	–0.04	–0.01	5.0
	(0.96)	(–0.86)	(–1.20)	
Netherlands	0.25	–0.20	–0.02	24.0
	(5.15)	(–3.67)	(–3.34)	
Switzerland	0.13	0.11	–0.05	34.9
	(3.67)	(0.62)	(–4.40)	
United Kingdom	–0.01	–0.02	0.01	10.0
	(–0.16)	(–0.44)	(1.50)	
United States	–0.03	0.09	0.00	14.0
	(–1.83)	(3.44)	(–0.13)	
EW7	0.06	0.00	–0.98	11.0
	(1.26)	(0.05)	(–2.90)	
VW7	–0.04	0.10	0.04	7.0
	(–2.12)	(2.92)	(0.26)	
C. 1990–2004: 1-year subsequent real dividend growth				
France	–0.14	0.63	–0.02	7.7%
	(–0.69)	(1.53)	(–0.88)	
Germany	0.55	–0.96	–0.11	47.6
	(5.44)	(–3.16)	(–4.03)	
Greece	0.70	–1.23	–0.03	51.3
	(8.73)	(–4.70)	(–1.08)	
Italy	0.50	–0.48	–0.09	20.2
	(3.44)	(–1.23)	(–1.33)	
Japan	–0.04	–0.11	0.10	6.0
	(–0.89)	(–1.56)	(1.28)	
Netherlands	0.36	–0.45	–0.03	21.2
	(4.72)	(–3.03)	(–3.91)	
Portugal	0.68	–0.72	–0.11	46.8
	(7.10)	(–5.52)	(–5.15)	
Spain	0.34	–0.62	–0.02	11.6
	(2.04)	(–1.69)	(–1.40)	
Switzerland	0.92	–1.37	–0.29	44.7
	(3.98)	(–2.08)	(–4.68)	

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Table 7. Subsequent Real Dividend Growth as a Function of Payout Ratio and Dividend Yield (continued)
(*t*-statistics in parentheses)

Country	Constant	PR	DY	Adjusted R^2
United Kingdom	0.12	–0.34	0.02	15.9%
	(2.57)	(–3.43)	(2.82)	
United States	–0.03	0.02	–0.03	8.0
	(–0.82)	(1.76)	(–1.58)	
EW11	0.25	–0.34	–2.15	6.8
	(2.24)	(–1.55)	(–1.34)	
VW11	–0.14	0.11	3.01	5.1
	(–1.09)	(0.68)	(1.55)	

RDG and PR, although both World indices have positive coefficients. The DY coefficients are generally negative throughout Table 7. The addition of DY improves the explanatory power of the regressions compared with those in which PR was the only independent variable (Table 6). Panel C confirms the positive relationship between PR and RDG for the United States, but PR has negative coefficients for the remaining countries except France. DY is negative for all the markets (for some, strongly negative) except Japan and the United Kingdom, which confirms the hypothesis that higher market valuations are consistent with greater future growth of both earnings and dividends.

As a further comparison of the payout ratio's relationships to real earnings growth and real dividend growth, **Table 8** reports the results of regressions of subsequent RDG on PR and *lagged* real dividend growth (LDG) as the explanatory variables. In Panel A, the PR coefficients are negative for both the United Kingdom and, surprisingly, the United States. Ten-year lagged dividend growth (LDG_{10}) also has a negative coefficient in both cases, which is consistent with the evidence for LEG_{10} in Panel A of Table 5 and suggests some tendency for mean reversion. Panel C shows similar findings in the five-year regression results for the seven countries and the Word indices. The PR variable is negative in all cases except the United States and the World indices; LDG_5 is negative in all cases except the United Kingdom and Switzerland. The inclusion of the lagged variable adds considerably to the explanatory power of the model compared with the regressions reported in Table 6.

The observations of a positive relationship between PR and REG and a negative relationship between PR and RDG are consistent with traditional theory only in the case of the PR–RDG relationship. Therefore, either the findings in this study are peculiar to the time periods used or there is a flaw in conventional thinking about payout policy. Because A&A demonstrated that PR and REG have been positively linked throughout the 20th century in the United States, we conclude that the observations we made for the 1965–2004 period are not atypical. Some of the negative relationship between PR and REG can no doubt be explained by the mean reversion of earnings, as revealed in Table 5, but this finding alone does not describe the entire relationship. Therefore, an additional explanation is probably warranted.

Consider an environment that managers, in aggregate, deem to be offering high returns on capital investments. To fund these investments, companies retain more and more of their earnings, and the payout ratio falls. But because many companies are chasing the perceived opportunities in the marketplace (in accordance with the initial optimism among corporate decision makers), future returns fail to match the optimistic estimates made when earnings were retained. This scenario is consistent with a low payout ratio leading to lower subsequent real earnings growth. The reverse situation would occur if managers saw only limited possibilities and underestimated the profitability of potential projects. They would be prepared to return large portions of earnings to shareholders (unless they were building personal empires) and make few investments. These few investments would not suffer from the competition that exists during periods of high optimism and thus would earn higher rates of return than were initially estimated. In this scenario, a high payout ratio is consistent with higher subsequent earnings growth.

Another potential explanation for the findings reported in this study is that mean reversion exists in the payout ratio itself. If so, when the payout ratio is high, the predictions are that future real earnings growth will rise but also that dividends will not be increased at an equally high rate. Because managers seek to avoid dividend cuts wherever possible, a period of high earnings growth gives managers the opportunity to raise dividends but to do so at a slower pace than that at which earnings are increasing, thus bringing PR

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Table 8. Subsequent Real Dividend Growth as a Function of Payout Ratio and Lagged Dividend Growth
(*t*-statistics in parentheses)

Country	Constant	PR	LDG	Adjusted R^2
A. 1975–2004: 10-year subsequent real dividend growth				
United Kingdom	0.09	–0.08	–0.26	70.6%
	(8.60)	(–4.23)	(–4.17)	
United States	0.03	–0.03	–0.01	4.9
	(2.71)	(–1.26)	(–0.09)	
B. 1970–2004: 5-year subsequent real dividend growth				
United Kingdom	0.11	–0.15	–0.16	16.6%
	(4.31)	(–2.98)	(1.95)	
United States	–0.02	0.05	–0.24	9.3
	(–1.32)	(1.91)	(–2.65)	
C. 1978–2004: 5-year subsequent real dividend growth				
France	0.15	–0.17	–0.50	25.1%
	(5.23)	(–2.79)	(–4.91)	
Germany	0.18	–0.40	–0.86	46.4
	(4.50)	(–3.42)	(–6.99)	
Japan	0.01	–0.04	–0.16	2.4
	(0.76)	(–0.86)	(–1.29)	
Netherlands	0.12	–0.13	–0.19	12.3
	(2.40)	(–1.17)	(–1.41)	
Switzerland	0.14	–0.36	0.26	9.7
	(3.32)	(–2.40)	(1.35)	
United Kingdom	0.12	–0.16	0.13	18.7
	(4.81)	(–3.32)	(1.24)	
United States	–0.03	0.10	–0.56	40.0
	(–2.54)	(4.49)	(–6.29)	
EW7	–0.04	0.18	–0.21	11.3
	(–1.10)	(2.43)	(–1.45)	
VW7	–0.02	0.08	–0.28	16.8
	(–1.18)	(2.43)	(–2.28)	

down to a lower level.[6] In this way, should earnings stall or decline in future periods, the managers might feel less pressure to cut dividends because earnings would still adequately cover the distribution. When the payout ratio is very high, earnings presumably have less room to decrease before a dividend reduction is called for.

To investigate whether mean reversion in the payout ratio is causing the difference in sign between the PR–REG relationship and the PR–RDG relationship, we carried out a regression of both PR and the change in PR (PRC) *over the same period* against RDG. (Although PRC cannot be observed before an event, it can serve as a useful explanatory variable for our purposes here.) When the payout ratio is high, subsequent real earnings growth is also high; the logical extension would be that this effect is correlated with rising dividends. Therefore, the negative relationship between PR and RDG is surprising. By controlling for mean reversion in PR through the use of PRC, we hoped to achieve a more direct observation than was possible in previous regressions of the effect of PR on RDG.

Panel A of **Table 9** shows that the addition of the change in payout ratio for this long period leads to positive coefficients for both PR and PRC for the United Kingdom; for the United States, one coefficient on PR has become less negative than it was in Table 6; the coefficients on PRC are positive. These findings support the notion that real dividend growth is positively related to PR when mean reversion in PR is accounted for. In Panel B, however, many of the markets have retained the negative, statistically significant coefficients on PR. Only the coefficients for the United Kingdom and the Netherlands have flipped to positive. The introduction of PRC has had little impact on the one-year results reported in Panel C. Therefore, mean reversion in PR may explain some of the negative relationship observed between RDG and PR, but it fails to give a full explanation of this conundrum.

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Table 9. Subsequent Real Dividend Growth as a Function of Payout Ratio and Subsequent Change in Payout Ratio
(*t*-statistics in parentheses)

Country	Constant	PR	PRC	Adjusted R^2
A. 1965–2004				
10-year subsequent real dividend growth				
United Kingdom	0.00	0.03	0.19	83.5%
	(0.21)	(0.92)	(8.54)	
United States	0.01	–0.01	0.03	7.5
	(1.17)	(–0.41)	(1.81)	
5-year subsequent real dividend growth				
United Kingdom	0.00	0.03	0.23	43.8%
	(0.14)	(0.64)	(6.55)	
United States	–0.01	0.03	0.01	0.6
	(–0.63)	(0.85)	(0.21)	
B. 1973–2004: 5-year subsequent real dividend growth				
France	0.16	–0.26	–0.09	9.2%
	(3.95)	(–2.97)	(–1.65)	
Germany	0.13	–0.29	–0.12	12.3
	(3.42)	(–2.95)	(–0.96)	
Japan	0.11	–0.32	–0.23	35.4
	(5.16)	(–5.28)	(–6.00)	
Netherlands	0.00	0.07	0.07	24.3
	(0.11)	(0.81)	(5.39)	
Switzerland	0.08	–0.15	0.06	1.1
	(1.43)	(–0.69)	(0.36)	
United Kingdom	0.01	0.03	0.17	18.7
	(0.30)	(0.60)	(3.68)	
United States	–0.03	0.09	0.00	13.8
	(–2.07)	(2.89)	(0.00)	
EW7	0.05	–0.07	–0.09	0.7
	(0.75)	(–0.40)	(–0.89)	
VW7	0.03	–0.04	–0.09	15.6
	(0.77)	(–0.49)	(–1.99)	
C. 1990–2004: 1-year subsequent real dividend growth				
France	–0.39	1.04	0.65	12.2%
	(–1.85)	(2.12)	(1.57)	
Germany	0.44	–1.28	0.23	35.1
	(3.87)	(–3.83)	(0.92)	
Greece	0.65	–1.31	0.25	51.0
	(7.42)	(–6.20)	(1.11)	
Italy	0.29	–0.53	1.36	37.0
	(2.48)	(–1.93)	(3.66)	
Japan	0.14	–0.35	–0.59	26.2
	(2.75)	(–3.14)	(–3.46)	
Netherlands	0.57	–1.05	–0.48	20.6
	(5.72)	(–5.38)	(–3.16)	
Portugal	–0.14	0.40	1.60	55.8
	(–1.18)	(1.44)	(4.97)	
Spain	0.12	–0.23	1.17	27.8
	(0.85)	(–0.70)	(2.96)	
Switzerland	0.37	–1.06	0.60	15.0
	(1.50)	(–1.18)	(0.76)	

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Table 9. Subsequent Real Dividend Growth as a Function of Payout Ratio and Subsequent Change in Payout Ratio (continued)
(*t*-statistics in parentheses)

Country	Constant	PR	PRC	Adjusted R^2
United Kingdom	0.06	–0.09	0.22	12.9%
	(1.11)	(–1.14)	(2.55)	
United States	0.02	0.00	–0.27	13.6
	(0.34)	(0.02)	(–2.11)	
EW11	0.37	–0.73	–0.39	6.7
	(2.97)	(–2.66)	(–1.39)	
VW11	0.11	–0.20	–0.44	20.2
	(1.62)	(–1.39)	(–2.61)	

The Payout Ratio and Returns. We have been considering the ability of the payout ratio to explain growth in earnings and growth in dividends. The information that practitioners want, however, is whether this evidence can be used to generate returns. Do higher earnings and/or dividend growth lead to higher returns? To find an answer, we ranked five-year periods of REG and RDG on an annual basis for the markets where data were available for the 1973–2004 period. We formed quartiles in which Quartile 1 contains the lowest six five-year periods of REG (or RDG) and so on up to Quartile 4, which contains the highest six five-year periods of REG (RDG). The concurrent average annually compounded percentage real return of each quartile is reported in **Table 10**.

Panel A demonstrates that periods of high REG (Quartile 4) were clearly accompanied by higher returns than periods of low REG (Quartile 1), but the results provide no evidence of a linear increase in returns across quartiles. Panel B reveals that periods of high RDG were also accompanied by higher returns than were low-RDG periods. As for REG, however, no linear relationship is shown.

The conclusion of this simple analysis is that high REG and RDG *tend* to exist in parallel with relatively higher returns. The implication of this conclusion for practitioners is that a high payout

Table 10. Average Five-Year Real Returns for Quartiles Ranked by Concurrent Real Earnings Growth and Quartiles Ranked by Real Dividend Growth, 1973–2004

Country	Quartile 1 (low REG or RDG)	Quartile 2	Quartile 3	Quartile 4 (high REG or RDG)
A. Ranking by concurrent five-year real earnings growth				
France	6.17%	8.70%	9.66%	20.11%
Germany	3.45	–0.60	9.34	17.07
Japan	–6.48	3.14	7.43	12.27
Netherlands	3.76	9.03	15.25	21.31
Switzerland	0.66	2.17	14.47	17.01
United Kingdom	5.76	11.38	8.64	12.97
United States	7.66	6.11	3.30	16.80
EW7	5.21	4.46	13.87	15.96
VW7	6.57	6.15	10.04	13.06
B. Ranking by concurrent five-year real dividend growth				
France	2.88%	18.12%	8.86%	14.79%
Germany	–0.83	6.67	6.09	18.19
Japan	–2.33	–2.61	9.21	12.09
Netherlands	2.53	19.23	14.44	8.90
Switzerland	–0.67	8.24	7.39	19.35
United Kingdom	–1.36	13.63	11.90	14.57
United States	6.63	4.97	10.87	11.40
EW7	5.36	9.37	6.75	18.03
VW7	6.87	2.23	9.46	17.27

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ratio may lead to subsequent high real earnings growth but also to low real dividend growth. Thus, PR emits a somewhat contradictory signal in terms of returns. **Table 11** formalizes this idea by presenting results for regressions akin to those of Tables 2 and 6 but with subsequent real returns as the dependent variable and PR as the independent variable. In Panel A, for the 10-year subsequent real return regressions, both PR coefficients are negative but only the U.K. coefficient is significant. The adjusted R^2 value is very low for the United States but fairly substantial for the United Kingdom. For the 5-year subsequent real return regressions, however, the U.S. coefficient is positive whereas the U.K. coefficient remains negative. Panel B, with a fairly even mix of positive and negative coefficients, shows no general relationship between PR and returns. The explanatory power of most of these regressions is negligible. In Panel C, 9 of the 11 countries have positive PR coefficients, as do both World indices. The adjusted R^2 values are typically low, although generally higher than those in the 5-year regressions in Panel B. These results provide little evidence that PR has any ability to predict subsequent aggregate market returns.

Table 11. Subsequent Real Returns as a Function of Payout Ratio
(*t*-statistics in parentheses)

Country	Constant	PR	Adjusted R^2
A. 1965–2004			
10-year subsequent real returns			
United Kingdom	0.30	–0.39	51.5%
	(10.79)	(–7.28)	
United States	0.14	–0.14	2.5
	(3.37)	(–1.67)	
5-year subsequent real returns			
United Kingdom	0.19	–0.21	5.3%
	(3.70)	(–2.09)	
United States	–0.03	0.19	2.9
	(–0.54)	(1.63)	
B. 1973–2004: 5-year subsequent real returns			
France	0.07	0.09	0.3%
	(0.82)	(0.45)	
Germany	0.07	0.02	0.0
	(1.25)	(0.18)	
Japan	0.00	0.11	0.1
	(0.05)	(0.63)	
Netherlands	0.22	–0.22	1.8
	(2.83)	(–1.26)	
Switzerland	0.05	0.14	0.0
	(0.72)	(0.56)	
United Kingdom	0.14	–0.08	0.7
	(3.21)	(–0.92)	
United States	–0.11	0.40	18.1%
	(–2.48)	(4.93)	
EW7	0.20	–0.24	8.5
	(5.13)	(–2.69)	
VW7	0.24	–0.50	25.2
	(6.81)	(–4.05)	
C. 1990–2004: 1-year subsequent real returns			
France	–0.77	1.81	11.5%
	(–3.11)	(3.51)	
Germany	0.37	–0.88	3.2
	(1.58)	(–1.24)	
Greece	–0.26	1.01	7.7
	(–1.61)	(2.61)	
Italy	0.43	–0.77	6.6
	(1.86)	(–1.59)	
Japan	–0.43	1.06	9.5
	(–2.44)	(2.34)	
Netherlands	–0.31	0.84	2.6
	(–1.02)	(1.46)	
Portugal	–0.09	0.38	0.9
	(–0.57)	(1.08)	
Spain	–0.01	0.29	–0.2
	(–0.01)	(0.41)	
Switzerland	0.08	0.15	–0.5
	(0.26)	(0.14)	
United Kingdom	–0.38	0.75	10.7
	(–2.41)	(3.14)	
United States	0.04	0.13	0.3
	(0.33)	(0.60)	
EW11	–0.25	0.69	13.3
	(–1.91)	(2.73)	
VW11	–0.11	7.65	1.5
	(–0.64)	(0.88)	

PR may in some way, however, be correlated with the valuation of the aggregate market. If so, then the specification in Table 11 fails to remove this effect. To test for this possibility, we included earnings yield as an additional explanatory variable to proxy for overall market valuation (as in Table 4). **Table 12** provides the results. In Panel A, with the inclusion of EY, both PR coefficients for the United States become positive and significant, the 5-year U.K. coefficient is also positive, but the 10-year U.K. coefficient remains significantly negative. In Panel B, six of the seven individual markets have positive PR coefficients (compared with five in Table 11) but only the U.K. and U.S. coefficients are significant. Both of the World indices have negative coefficients in Panel B, but the reason may be that returns were calculated in U.S. dollars. The inclusion of EY appears to have had little effect (when compared with Table 11) on the PR coefficients reported in Panel C.

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Table 12. Subsequent Real Returns as a Function of Payout Ratio and Earnings Yield
(*t*-statistics in parentheses)

Country	Constant	PR	EY	Adjusted R^2
A. 1965–2004				
10-year subsequent real returns				
United Kingdom	0.20	–0.28	0.42	54.0%
	(3.03)	(–3.43)	(1.67)	
United States	–0.28	0.39	1.83	25.4
	(–2.83)	(2.98)	(5.09)	
5-year subsequent real returns				
United Kingdom	–0.22	0.25	1.74	25.0%
	(–1.79)	(1.82)	(2.88)	
United States	–0.19	0.36	1.10	13.2
	(–2.47)	(2.79)	(3.42)	
B. 1973–2004: 5-year subsequent real returns				
France	–0.07	0.14	1.27	12.6%
	(–0.94)	(0.92)	(2.72)	
Germany	–0.04	–0.05	1.91	9.5
	(–0.57)	(–0.41)	(2.59)	
Japan	–0.10	0.04	3.88	28.0
	(–1.73)	(0.34)	(4.62)	
Netherlands	0.02	0.06	0.66	5.7
	(0.14)	(0.23)	(1.53)	
Switzerland	0.07	0.13	–0.21	0.0
	(0.78)	(0.48)	(–0.41)	
United Kingdom	–0.27	0.41	1.58	28.5
	(–2.31)	(3.22)	(2.93)	
United States	–0.22	0.51	0.78	25.5
	(–3.38)	(5.41)	(2.62)	
EW7	0.02	–0.06	1.08	22.5
	(0.32)	(–0.51)	(3.08)	
VW7	0.25	–0.51	–0.05	25.0
	(4.18)	(–3.97)	(–0.16)	
C. 1990–2004: 1-year subsequent real returns				
France	–1.48	2.86	5.08	20.8%
	(–4.71)	(5.63)	(2.73)	
Germany	0.02	–0.67	4.42	8.5
	(0.07)	(–0.87)	(1.84)	
Greece	–0.35	1.03	1.14	7.6
	(–1.30)	(2.61)	(0.54)	
Italy	0.07	–0.75	6.37	13.0
	(0.31)	(–1.65)	(2.22)	
Japan	–2.17	3.10	44.91	60.0
	(–6.61)	(5.46)	(7.68)	
Netherlands	–0.47	0.85	2.47	5.6
	(–1.49)	(1.57)	(1.81)	
Portugal	–0.12	0.42	0.06	0.3
	(–0.53)	(0.93)	(0.38)	
Spain	–0.12	0.13	2.49	4.0
	(–0.41)	(0.21)	(1.72)	
Switzerland	–0.02	0.31	0.86	–0.9
	(–0.04)	(0.25)	(0.39)	

(continued)

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Table 12. Subsequent Real Returns as a Function of Payout Ratio and Earnings Yield (continued)
(*t*-statistics in parentheses)

Country	Constant	PR	EY	Adjusted R^2
United Kingdom	–0.67	0.67	5.63	28.7%
	(–4.09)	(3.02)	(3.93)	
United States	–0.19	0.12	5.46	13.4
	(–1.26)	(0.60)	(2.65)	
EW11	–0.27	0.67	0.53	12.8
	(–1.52)	(2.53)	(0.18)	
VW11	–0.13	7.75	0.24	5.4
	(–0.76)	(0.92)	(1.34)	

Overall, the results of our introduction of a variable to control for market valuation suggest that a positive relationship exists between PR and subsequent returns, but the evidence of a significant relationship is weak except for the United States. Therefore, predicting future returns from the payout ratio is problematic.

Conclusion

We extended the work of Arnott and Asness in the U.S. market to an additional 10 countries, and this international evidence generally supports A&A's findings—despite the very different institutional, tax, and legal environments of our sample. In short, substantial reinvestment of retained earnings does not lead to faster future real earnings growth, although it does lead to faster real dividend growth. Investing in countries with higher payout ratios is also observed to result in higher earnings growth than investing in markets with low payout ratios.

Unfortunately, these findings did not translate to return predictability in a persuasive fashion: The results vary for different countries and time periods. The notable exception appears to be the U.S. market, where the payout ratio is significantly related to subsequent 5-year and 10-year returns. In general, predicting real earnings and dividend growth is the easy part; valuing them is quite another matter!

Currently, the components of the S&P 500 are paying out around one-third of their earnings as dividends, well below the post–World War II average of 50–60 percent. Therefore, our findings suggest that the outlook for earnings growth in the next few years is ominous.

This article qualifies for 1 PD credit.

Notes

1. Recent articles (e.g., Currier 2004; Perkins and Gavrina 2004) have begun to change this trend by placing greater emphasis on aggregate payout ratios.
2. A detailed discussion of the various tax structures is available from the authors on request.
3. For Japan, Switzerland, and the United Kingdom, we used, respectively, a US$/¥, US$/SFr, or US$/£ exchange rate. For the remaining countries, a US$/€ exchange rate was used. Datastream applied a synthetic euro exchange rate to the series prior to the introduction of the euro in 1999. Because the US$/€ exchange rate came into existence only in January 1999, we built a historical US$/€ exchange rate as follows. From January 1978 to December 1998, the European Currency Unit (ECU) was the precursor of the euro; when the euro was established in 1999, it replaced the ECU at a 1:1 ratio. Therefore, for the 1978–98 period, we used a US$/ECU exchange rate. The US$/€ exchange rate we used for 1973–1977 was based on the German mark because of its dominance in the ECU.
4. The United States and the United Kingdom were the only common-law countries in our sample.
5. These regressions were run for only the first two periods because data for Period 3 were insufficient.
6. See Kaplan and Reishus (1990) for the potential consequences of cutting dividends.

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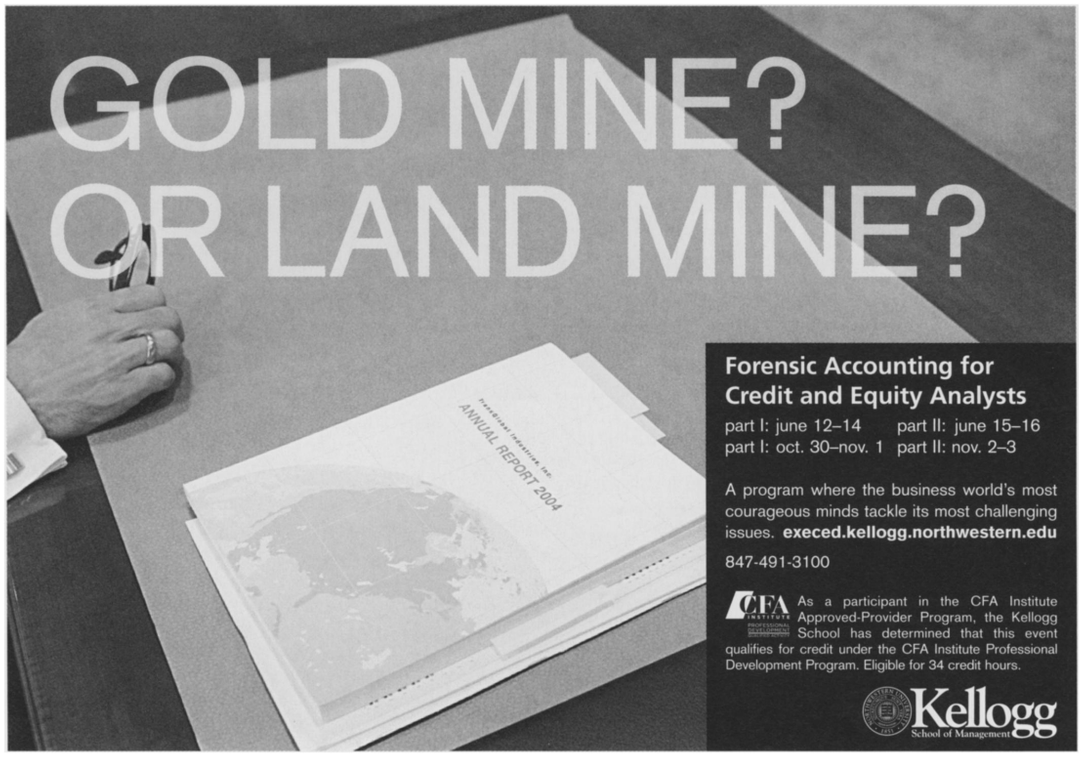
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