Risky Value

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Abstract

Countries with higher levels of B/P have higher levels of subsequent earnings growth and exhibit much greater variability in that future earnings growth. Consistent with a risk based explanation for B/P predicting country level returns, we find strong evidence that the sensitivity of subsequent earnings growth to contemporaneous global earnings growth (and global market returns) is greater on the downside for countries with higher levels of B/P. Furthermore, B/P is relatively more important than E/P in explaining country level returns for countries with higher and more uncertain expectations of future earnings growth. Controlling for ex post realizations of earnings growth subsumes the ability of B/P to explain country returns. Overall, the results suggest that expectations of risky earnings growth, as reflected in B/P, play a significant role in explaining country returns.

Keywords: equity premium, country returns, value, earnings growth, book-to-price, earnings yield, dividend yield

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1. Introduction

This paper uses an accounting-based approach to identify growth characteristics that can help explain equity returns at the country level for a sample of 30 countries over the past two decades. Our objective is to contribute to the literature on determinants of the equity premium – the return earned by a broad market index in excess of that earned by a relatively risk-free security. Understanding cross-sectional and time series variation in the equity premium remains a central question in financial economics of interest to academics, practitioners and corporations.

Motivated by the seminal work of Campbell and Shiller (1988a), recent research on expected returns at the country level has mainly focused on dividend yield (see Fama and French, 2002; Campbell, 2008; and Dimson, Marsh and Staunton, 2008). This literature generally finds that aggregate dividend yield, D/P, is positively associated with aggregate returns. However, a consistent finding is that D/P is a poor forecaster of future dividend growth (see Campbell and Shiller, 1998; and Cochrane, 1992, 1994) or future growth in industrial production (see Table VI of Fama, 1990).[1] This weak forecasting power of D/P motivates the study of other potentially more appropriate accounting variables that are related to future earnings growth.

Building on the Penman, Reggiani, Richardson and Tuna (2013) accounting-based framework, we develop a link between earnings growth, valuation measures and expected

[1] Lettau and Ludvigson (2005) point out that the power of D/P to forecast dividend growth is even weaker at business cycle frequencies. This suggests that time-variation in expected returns is also an important part of aggregate stock market variability. They propose that such variation is better revealed by a less persistent empirical proxy for the log consumption-wealth ratio, denoted cay_t, which describes deviations from the common trends in consumption, asset wealth and labor income. Importantly, they show that changing forecasts of dividend growth (which is analogous to earnings growth) do explain fluctuations in the US stock market, but D/P appears unable to uncover such variation.

returns. Fama and French (2002) suggest that estimates of expected returns that are based on fundamental data are likely to be more precise than the average historical stock returns which fail to capture time variation in expected returns (see also Claus and Thomas, 2001). We use firm level fundamentals, firm level earnings forecasts, as well as macroeconomic forecasts for a broad cross-section of 30 countries to derive country level characteristics that are expected to be related to country earnings growth. These country growth characteristics are used to explain cross-sectional variation in country returns. To date, data limitations have restricted the focus of empiricists to a handful of countries mainly relying on index-level dividends or earnings (see Jorion and Goetzmann, 1999; Fama and French, 2002; Dimson, Marsh and Staunton, 2008; Campbell, 2008; and Cornell, 2012).[2] A notable exception is Asness, Moskowitz and Pedersen (2013) who document return predictability of Book-to-Price, B/P, across US, UK, European and Japanese index level returns.

Most previous country level empirical research has focused on dividends, perhaps due to the better availability of long-run data on dividends or due to prior theories being more focused on dividends rather than accounting fundamentals. Dividends are problematic because: (i) dividend policies are endogenously chosen by firms, (ii) dividends tend to vary only gradually due to signaling incentives and clientele effects, (iii) there is a declining trend in dividends and an increasing substitution by share repurchases, and (iv) dividends create potentially distorting tax effects. Furthermore, a focus on dividends only provides partial coverage of firms in the cross-section as D/P would be irrelevant for the expected returns of firms that are non-payers. When aggregated to the country level, this firm level heterogeneity in dividends introduces

[2] For example, Dimson, Marsh and Staunton (2008) conduct a long-run study over the 1900 to 2005 time period in 17 countries and find that higher dividend yielding countries exhibit higher returns. Other empirical research on US and international country equity returns has studied mean reversion, momentum, winner-loser reversals, industry effects and exchange rate movements, among other characteristics (see Richards, 1997; Rouwenhorst, 1998; Asness, Liew and Stevens, 1997; Ferson and Harvey, 1993; Heston and Rouwenhorst, 1995; and Griffin and Stulz, 2001).

noise. As a result dividends are a poor measure of fundamental value. Instead, we examine whether fundamental accounting characteristics that are associated with future earnings growth, in particular earnings and book values, explain cross-sectional variation in country level returns.

Using a panel of 6,600 country-month return observations over the period March 1993 through to June 2011 covering 30 countries, we find strong evidence of Earnings-to-Price, E/P, and B/P jointly explaining cross-sectional variation in country level returns. Strikingly, D/P is not associated with country level returns after controlling for E/P and B/P. D/P has been the main focus of prior work in financial economics, and while it has stand-alone explanatory power, it is largely irrelevant after including E/P and B/P.[3] This loss of predictive power of D/P is easily explained. Dividends are not a measure of value creation as they reduce retained earnings and book equity available to generate future earnings growth. Conversely, earnings and book equity are directly related to future value creation and subsume the information in dividends (since dividends are linked to earnings through a payout policy). This makes E/P and B/P more natural candidate characteristics to explain returns.

Our primary motivation for including B/P as a characteristic to explain country level returns is its ability to reflect expectations of subsequent earnings growth (see Penman and Reggiani, 2013), and especially risky earnings growth (see Penman, Reggiani, Richardson and Tuna, 2013) at the firm level. We find strong evidence that countries with high levels of B/P have (i) higher levels of subsequent earnings growth, (ii) greater dispersion in subsequent earnings growth, and (iii) most importantly, greater sensitivity of subsequent earnings growth to global earnings growth (and global market returns) in downside states of the world. We also find

[3] While academic literature has identified several predictor variables for expected returns, it is worth pointing out that Welch and Goyal (2008) reexamine the in-sample and out-of-sample performance of several predictor variables for the US equity premium including E/P, B/P and D/P, and argue that by and large the models perform poorly.

that controlling for ex post realizations of country level earnings growth subsumes the ability of B/P to explain country level returns, as would be expected if B/P is capturing unbiased expectations of future earnings growth (see e.g., Fama, 1990).

Expected returns are attributable to expectations of forward earnings and subsequent earnings growth. Expectations of near term earnings are captured by E/P, and expectations of longer term earnings growth are captured, in part, by B/P. Our results show that B/P reflects expectations of subsequent earnings growth. The 'P' in this ratio reflects the uncertainty around those expectations, potentially supporting a risk based explanation for the positive relation between B/P and future stock returns at the country level. A risk based explanation is supported by two key results from our analysis. First, sorting countries on B/P also sorts on dispersion in the future realizations of earnings growth, and once those realizations are controlled for the positive relation between B/P and future stock returns disappears. This is the resolution of uncertainty directly lowering expected returns (i.e., as time passes there is a change in expectations of the term structure of earnings growth). This result highlights a key feature of the framework in Penman, Reggiani, Richardson and Tuna (2013): that while cash flow news directly affects security prices it also affects the discount rate by lowering uncertainty about the remaining future earnings growth. One can think of an equity claim as a long duration exposure to free cash flows, and as time passes there is resolution of the associated uncertainty and expected returns adjust accordingly. Second, we find a striking asymmetry in earnings growth betas across countries with low and high levels of B/P. Countries with high B/P have much stronger earnings growth beta in bad states of the world. Together, this provides evidence of time variation in expected returns supporting the positive relation between B/P and future stock returns.

Our findings are related to recent research examining predictability of excess stock returns at the country level. For example, Asness, Moskowitz and Pedersen (2013) find strong evidence of a positive relation between value measures (using the B/P ratio for the MSCI index of the country) and future returns across a variety of asset classes, which they attribute to global risks. Likewise, Campbell and Thompson (2008) find evidence that various measures of E/P and B/P generate out-of-sample improvements in country return predictability after imposing economically motivated constraints on regression coefficients. Our paper suggests a fundamental basis for these 'value' measures to capture risk: earnings growth is the outcome at risk for the common equity holder, and B/P is an unbiased measure of expectations of subsequent earnings growth.

The rest of the paper proceeds as follows. Section 2 describes the framework used in the paper to link growth characteristics to returns, Section 3 describes the empirical research design as well as the data, Section 4 presents the main empirical findings, and Section 5 concludes.

2. Linking earnings growth characteristics to expected returns

Financial statements are a useful starting point for understanding the drivers of changing security prices. It is well known that ex post realizations of accounting based fundamentals explain a significant portion of variation in realized stock returns. For example, Easton, Harris and Ohlson (1992) show that cum-dividend earnings realizations over a ten year period can explain over 60 percent of the variation in contemporaneous stock returns for a large sample of US firms. Richardson, Sloan and You (2012) use changes in sell-side analyst expectations of forward earnings measured over the same return period, to explain 37 (57) percent of return variation over a 1 (5) year horizon. Similarly, Asness, Israelov and Liew (2011) using a variance

decomposition of country level returns show strong evidence of country fundamentals as the dominant factor for return intervals greater than 5 years. From a theoretical perspective, Ohlson (1995, equations P5 and P6) notes that as the return interval lengthens the observed change in stock prices approximates cum-dividend changes in book value of equity.

Just as realizations of earnings growth explain realized stock returns, expectations of earnings growth will be a primary determinant of expected returns. This is readily apparent from a simple accounting framework (see Penman, Reggiani, Richardson and Tuna (2013)). The starting point for the accounting framework is the clean surplus relationship embedded in financial statements, which states that changes in the book value of equity, *B* from year to year, are a result of the addition of comprehensive income, *Earnings* and the payment of dividends (net of equity issuance), *d*, such that: $B_{t+1} = B_t + Earnings_{t+1} - d_{t+1}$. This can be rearranged to express net dividends as $d_{t+1} = Earnings_{t+1} - (B_{t+1} - B_t)$. Substituting for dividends in the dollar stock return expression, Eq. (1) shows that expected dollar returns are explained by expected forward earnings and the expected change in the premium of price over book value of equity:

$$E_t[P_{t+1} + d_{t+1} - P_t] = E_t[Earnings_{t+1}] + E_t[P_{t+1} - B_{t+1} - (P_t - B_t)]. \quad (1)$$

Dividing through by P_t and rearranging gives an expression for the expected rate of return:

$$E_t[R_{t+1}] = \frac{E_t[P_{t+1} + d_{t+1} - P_t]}{P_t} = \frac{E_t[Earnings_{t+1}]}{P_t} + \frac{E_t[P_{t+1} - B_{t+1}] - (P_t - B_t)}{P_t}. \quad (2)$$

The deflation by price in Eq. (2) serves to capture the expectations of earnings and expectations about the change in premium of price over book incorporated in the current price. If there is no change in the premium, Eq. (2) says that the expected rate of return is equal to the expected earnings yield (the first term on the right hand side). However, given the forward

earnings yield, the forecasted change in premium of price over book value is needed to describe expected returns. Eq. (2) is a tautology and given perfect information and no frictions, should fully explain expected returns. E/P captures current expectations (in price) about earnings realization over the next period, and the expected change in premium of price over book reflects expectations about subsequent earnings growth.

While Eq. (2) is a tautology, it is a powerful way to understand how, and why, multiple measures from the accounting system are needed to describe expected returns. Earnings are known to be confounded by transitory items and heavily influenced by the conservatism embedded in the financial reporting system (e.g., expensing of research and development costs, asymmetric asset impairment tests, and expensing of advertising costs). A direct consequence of this conservatism is that earnings alone are unlikely to be sufficient to capture future earnings growth. The conservative choices embedded in the financial reporting system in part reflect risk. Investments associated with riskier activities tend to be expensed as they are incurred and future benefits (i.e., potential sales) associated with these risky investments are deferred into future periods. This creates future earnings growth in the financial reporting system, and a sole focus on forward earnings, E/P, is typically insufficient to capture the full extent of this deferral. You can only uncover expected returns by measuring forward earnings yield (which captures expected earnings realizations over the next period) and the expected change in premium of price over book (which reflects expectations about subsequent earnings growth). The latter component is, in part, captured by B/P. Indeed, at the firm level it has been shown that the information content of B/P for subsequent earnings growth is greatest in the cases where 'E' is expected to suffer more from the limitations of conservative accounting choices (see Penman, Richardson, Reggiani and Tuna, 2013).

An alternative way to understand the intuitive link between earnings, earnings growth and expected returns is based on the constant growth dividend discount model re-expressed in terms of earnings with a constant payout ratio k.

$$P_t = \frac{E_t[D_{t+1}]}{E_t[R] - E_t[g]} \quad \Leftrightarrow \quad P_t = \frac{E_t[k * Earnings_{t+1}]}{E_t[R] - E_t[g]}. \tag{3}$$

Eq. (3) can be rearranged in terms of $E_t[R]$ and the terms separated

$$E_t[R] = \frac{E_t[k * Earnings_{t+1}]}{P_t} + E_t[g]. \tag{4}$$

The formulation in Eq. (4) highlights that expected returns are a function of forward earnings yield and future expected perpetual growth.[4] While this formulation has its limitations it helps to make two points: i) returns are related to growth and to the extent growth is risky expected returns would reflect the risk; and ii) similar to the accounting framework in Eq. (2) expected returns are related to E/P and candidate characteristics that provide information on growth.[5] Therefore, identifying accounting characteristics that predict future earnings growth may yield more accurate return forecasts. The accounting framework in Eq. (2) presents B/P as a candidate characteristic that informs on future risky earnings growth (see also Penman and Reggiani (2013)).

The firm level accounting framework in Eq. (2) is extended to the country level by aggregating the underlying accounting fundamentals and developing country level characteristics.[6] Aggregating up firm level fundamentals to develop country level variables is

[4] Along similar lines Fama and French (2002) decompose average stock returns into earnings yield and capital gains. Their approach also highlights the positive relation between capital gains and growth.

[5] Another limitation of this formulation is that it does not recognize that dividend payout will reduce future earnings (beyond $t + 1$) which will negatively affect growth.

[6] For example, for aggregate E/P the earnings of all N firms in a particular country are aggregated, and the market values of all N firms in a particular country are aggregated and a country's E/P is calculated as $\sum_1^N E \,/\, \sum_1^N P$.

intuitive but poses the potential problem of omitting other variables that may be important at the aggregate level. Therefore, this paper also considers macroeconomic factors related to expectations of forward earnings growth for countries as they may also play a role in explaining aggregate returns. Macroeconomic indicators of overall real business activity and price levels, such as changing expectations of growth in GDP or inflation, are related to expectations of aggregate corporate (nominal) earnings growth, and hence are candidate characteristics to explain country returns (see Schwert, 1990).

3. Research design and data description

The discussion in the previous section guides the choice of variables that are included in cross-sectional regressions of forward returns on country level characteristics. The main dependent variable is monthly country returns, either for one month or accumulated over a return horizon such as 12 months. From Eq. (2) the main determinants of expected returns are expectations of forward earnings and a term related to expectations of subsequent earnings growth (the change in the premium of price over book).

From Eq. (2) we rearrange to separate E/P, B/P and the premium of price over book:

$$E[R_{t+1}] = \frac{E[Earnings_{t+1}]}{P_t} + \frac{B_t}{P_t} + \frac{E[P_{t+1} - B_{t+1}]}{P_t} - 1. \qquad (5)$$

The future premium of price over book is an unknown, as we cannot observe the future price or the future book value. However, deviations from the current premium will be driven by unexpected changes in book value (i.e., positive or negative realized growth) which must be attributable to changes in expectations about subsequent earnings growth. Eq. (5) suggests that B/P may be a valid candidate variable that can predict changes in the premium of price over

book and hence indicate risky subsequent earnings growth. Thus, the following base cross-sectional regression model is specified (country subscripts suppressed):

$$R_{t+1} = a + b_1 \frac{E[Earnings_{t+1}]}{P_t} + b_2 \frac{B_t}{P_t} + b_3 X_t + \varepsilon_{t+1} \quad (6)$$

The model in Eq. (6) tests whether E/P, B/P, and other variables X_t that are expected to be related to subsequent country earnings growth combine to explain country returns. The empirical tests in this paper employ the cross-sectional regression approach used in prior finance literature (Fama and French, 1992). Each month the cross-section of country returns are regressed on candidate characteristics hypothesized to explain expected returns. The average time-series coefficients from monthly regressions provide evidence on whether these characteristics are priced in the cross-section of countries. We also use panel regressions to examine the data.

For powerful statistical tests, a sufficient number of countries are required in the cross-section. However, the relatively demanding data requirements for firm level earnings, book values of equity, dividends and other data for calculation of characteristics, as well as macroeconomic forecasts, restricts the size and length of the sample. This study covers 30 countries over the time period from March 1993 to June 2011, providing 220 months (18 years, and 4 months) of data for each country. The countries include Australia, Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Great Britain, Hong Kong, India, Indonesia, Israel, Italy, Japan, Malaysia, the Netherlands, New Zealand, Norway, Portugal, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand and USA. The average number of firms in each country over the time period is reported in Table 1. Firms are identified as belonging to a country based primarily on country of incorporation. A

maximum of 1,685,724 underlying firm-months across countries are available with fundamentals, price and I/B/E/S forecast data. Each month, and within each country the available underlying firms are used to form aggregate country level variables, providing 6,600 country-month observations over the time period (220 months for 30 countries). Country-months are the main unit of analysis.

Returns data for US firms are collected from CRSP, and for non-US firms are collected from Compustat Global. Where delisting returns are available, these are included in order to mitigate potential survivorship bias. The analysis focuses mainly on value-weighted monthly country excess returns. Excess returns are local currency returns less the relevant short term risk free rate, or equivalent short term cash rate, for each country. Only those firms are used for which returns as well as corresponding fundamental and I/B/E/S data are available, so that dependent and independent variables pertain to the same underlying firms in each country every month. In addition, some of the analysis uses country returns developed using data on the constituents of the MSCI All Country World Index (ACWI). The MSCI ACWI index covers over 9,000 securities in 45 developed and emerging markets and serves as a broad global equity market benchmark used by practitioners for global asset allocation and performance measurement. MSCI has also developed an equity index for each country represented in the ACWI index, so that each country index is a subset of the ACWI, using the same constituents. The quarterly market value weights of each firm in each country in the ACWI index are used to identify the contribution of each firm to its respective country index. Then a value weighted return for each of the 30 countries is calculated. Since the ACWI index constituent information is not available for the entire 220 month period, the MSCI returns are calculated for 163 months from December 1997 to June 2011 for each country. The total number of underlying firm-

months in the MSCI returns sample is 283,807 with a total of 4,890 country-months (163 months for each of the 30 countries).

Fundamental data are collected from Compustat North America for US and Canadian firms, and from Factset Fundamentals and Compustat Global for international firms. The explanatory variables are at the country level so for each month fundamental data is aggregated up for all the firms in each country. For book values of equity, the latest available fiscal period is used which may be quarterly, semi-annual or annual depending on the periodicity of reporting. For flow variables, such as earnings and dividends, the previous 12 months of earnings are accumulated. For example, for firms that report on a quarterly basis the four most recent quarters are added to calculate a trailing twelve month (TTM) number. Similarly, for firms reporting on a semi-annual basis the two most recent interim periods are added to calculate a similar TTM number. Each month, the book values of equity, earnings and dividends for all the firms in a country are added to compute aggregate book values of equity, earnings and dividends for each country at time *t*. In order to avoid look-ahead bias and to ensure that the same information that would be available to investors is used, prices are observed three months ($t + 3$) after fiscal period end. Returns measurement period begins in month $t + 4$ after fundamentals are available. Aggregate prices are represented by the sum of market values for all firms in each country. Country level variables are computed using the aggregated fundamentals and prices. For example, B/P for each country is calculated as the sum of book values of equity for all firms in the country scaled by the sum of market values of equity for the same firms.[7]

[7] To deal with negative earnings, a country level E/P is calculated only when aggregate country earnings are positive, denoted E/P(+) and is replaced with a zero when earnings are negative. An indicator variable labeled Negative E/P identifies the negative E/P instances.

Finally, macroeconomic forecasts and firm level earnings forecast are collected from Consensus Economics and I/B/E/S, respectively. Real annual GDP growth forecasts and inflation forecasts are the main macroeconomic variables used in the analysis. Firm level earnings forecasts from I/B/E/S are used to compute a one year ahead earnings forecast for each country. These earnings forecasts are then used to calculate a forward E/P variable. Table 2 reports the distribution of variables across the 30 countries for the 220 months. The notes to the table describe the calculation methodology for each variable.

4. Empirical results

4.1 Role of E/P and B/P in explaining country level stock returns

The first analysis in Table 3 reports the time-series average of the coefficients from monthly cross-sectional characteristic regressions. Monthly returns are accumulated beginning in month 4 (t + 4) for the subsequent 12 months (t + 15) to provide a 12 month buy-and-hold return. These returns are then regressed on the various characteristics. Since monthly returns are accumulated for 12 months, the reported t-statistics are based on Newey-West standard errors corrected for serial correlation incorporating 16 lags. Model I of Table 3 shows that E/P(+) is significantly positively associated with future returns (test statistic of 3.70), while models II and III show a similar result for B/P (test statistic of 3.44) and D/P (test statistic of 2.09), respectively. Individually, all three variables are associated with future returns, although E/P(+) and B/P have the highest adjusted R^2 of 0.074 and 0.060, respectively. Models IV-VI include various pairwise combinations of the three primary variables, and model VII includes all three variables together. Model VI directly tests Eq. (6) and shows that E/P(+) and B/P jointly indicate future returns with a significantly positive coefficient on both, and an adjusted R^2 of

0.106. This is consistent with expected returns being explained by both expectations of earnings (E/P) as well as by expectations of subsequent earnings growth (B/P).

It is clear that in all cases when D/P is included with either or both of E/P and B/P it is no longer significant. The coefficient on D/P declines in magnitude significantly and is no longer statistically significant. For example, the regression coefficient on D/P in model III is 1.890 with a test statistic of 2.09. This regression coefficient drops to between 0.242 (model VII) and 0.954 (model V), and test statistics drop to insignificance and are between 0.28 (model VII) and 0.95 (model V). In all cases the coefficients on both E/P(+) and B/P remain large and significant. In model VIII momentum, measured as the buy-and-hold country returns from the prior twelve months, is added. Asness, Liew and Stevens (1997) find parallels between stock and country return cross-sectional predictability for momentum, and similar results are reported here. The momentum characteristic is significantly positive and improves the adjusted R^2 of the model to 0.19. After the inclusion of momentum, the coefficients on E/P(+) and B/P remain large and positively significant, despite the potential for momentum to crowd out the cash flow news embedded in fundamental measures of value such as E/P and B/P. Model IX adds size (log of aggregated market capitalizations of firms in each country) but the coefficient is statistically insignificant. The inclusion of size also further reduces the coefficient on D/P to the point that it is negative, while the coefficients on E/P and B/P remain large and significant. In model X country beta, estimated using 36-month rolling regressions of monthly country returns against the returns on the MSCI All Country World Index, is included but the coefficient in insignificant. The adjusted R^2 of the model increases to 0.247 with the inclusion of momentum and size.

In model XI, the addition of macroeconomic expectations (GDP growth and inflation) increase the explanatory power of the cross-sectional model significantly to an adjusted R^2 of

0.36. Our sample size decreases slightly from 6,600 country-months to 6,530 country-months due to the additional data requirements. Expectations of one year ahead growth in GDP and expectations of nominal price growth are not associated with country level returns. Finally, in model XII the E/P(+) variable is substituted for the forward E/P variable using I/B/E/S earnings forecasts for the underlying firms, and the coefficient on forward E/P is large and significant, while the coefficient on B/P declines somewhat. Overall, this analysis suggests that in the cross-section, E/P(+), B/P and momentum are valid candidate characteristics to explain future country returns. However, contrary to previous findings D/P is largely irrelevant.

Table 4 reports the same regression models as in Table 3 but instead regression coefficients are estimated from the full panel of 6,600 country-months, with test statistics based on standard errors clustered by country and month in order to account for cross-sectional and time-series correlation. The variables are added to the regressions in the same sequence as in Table 3. Individually, E/P(+), B/P, and D/P have large and significant coefficients. In models IV-VII, the three value measures are combined in different orders. Consistent with Table 3 we see that D/P is crowded out when all three value measures are combined together, but it retains significance in the pairwise combinations of models IV and V. In model VII, consistent with the average coefficients from monthly regressions, the coefficients for both E/P(+) and B/P are large and significant with an adjusted R^2 of 0.095. In models VIII and IX, adding momentum (positive and significant), size (negative but insignificant) and beta (positive but insignificant) do not change the significance of E/P(+) or B/P, but add to the explanatory power of the model as evidenced by the adjusted R^2 of 0.106. In model XI, macroeconomic forecast variables are added with the coefficients not being significant. Finally, in model XII replacing E/P(+) with forward E/P delivers similar results as in Table 3. Overall, the results from the panel regression

suggest that E/P, B/P and momentum are positively related with country returns, and D/P is irrelevant in explaining country level returns.

Our panel regressions in Table 4 did not include fixed effects for either time or country. In Table 5 we present four models from the full specification in Table 4 and report results only for forward E/P for the sake of brevity (i.e., model XII from Table 4). Results are very similar if instead we use E/P(+). Model I repeats model XII from Table 4 for ease of comparison. The next three models simply include pairwise combinations of time and country fixed effects. For country fixed effects instead of using a global indicator for country to capture time invariant unobservable risk characteristics at the country level, we difference all variables using an expanding window for each country. Across models II-IV in Table 5 we continue to find that (i) D/P is crowded out after including forward E/P and B/P, and (ii) momentum is positively associated with future country level returns. Of note is the reduction in the explanatory power of B/P after the inclusion of country fixed effects. This is a stringent control as it captures all variation in country level returns. To the extent that countries experience extended periods of strong earnings growth, this will impede the ability of B/P to explain country level stock returns. This explanation is likely given that our sample period 1993-2011 includes an extended bull market period, especially for developing economies where earnings growth, and hence B/P, are likely to be important determinants of expected returns. We revisit this in section 4.2 below. Finally, the negative regression coefficients on real GDP growth and inflation forecasts in the country fixed effect specifications (models III and IV of Table 5) need to be explained. Because all variables are differenced with respect to an expanding window average in our country fixed effect specification, the negative coefficients imply that higher forecasted real GDP growth today relative to longer-run historical expected real GDP growth is associated with lower country level

returns over the next 12 months, possibly consistent with a naïve extrapolation of recent GDP growth.

In terms of the relative importance of our primary variables, B/P and E/P, in explaining country level stock returns, and the resulting crowding out of D/P, we note the percentage of variation explained by these three variables. As an example we use model XI from Table 4 as our basis for explaining variance. In that specification the adjusted R^2 is 0.114. We find that (i) B/P accounts for 43.4 percent of the explained variance, (ii) E/P accounts for 15.8 percent of the explained variance, (iii) D/P accounts for 16.8 percent of the explained variance, and (iv) the remaining 24.0 percent of the explained variance is captured by the other variables. While D/P is not statistically significant in explaining country level returns it is still able to capture significant variation in the explained portion of country level returns. Furthermore, B/P and E/P together dominate the traditional D/P measure in terms of explained variance.

Our empirical analysis in Tables 3 to 5 has attempted to explain country level returns over the following 12 months. In Table 6 we consider alternative return horizons from the next 1 month to the next 12 months. The objective is to try to assess how the return horizon influences return predictability. Fama and French (1988) have reported an increase in predictability with the return horizon at the firm level and a similar result is reported here in the cross-section of countries. As the return horizon increases, the lags used for the Newey-West standard error correction are increased to incorporate the appropriate adjustment for the overlapping nature of the series. For the sake of brevity we report specification X from Table 3. Our inferences are similar if we instead use an alternative specification (e.g. Forward E/P instead of E/P(+), or include real GDP growth and inflation forecasts). In panel A of Table 6, across all return windows we find that E/P and B/P crowd out D/P in explaining country level returns, and

momentum is positively associated with country level returns. These results corroborate firm level results documented by Fama and French (1988) at the country level, that the power of yield variables (in our case, E/P and B/P) increases with the forecast return horizon.

In panel B of Table 6 we examine country level returns using MSCI country index returns. For this alternative measure of returns we have a reduced number of firms per country and a reduced history of country level returns. As reported in Table 1, when using this alternative measure of country returns we base all of our explanatory variables on a reduced set of firms such that the fundamental measures reflect only those firms included in the MSCI country index. As a result, our sample drops from 6,600 country-months to 4,890 country-months. We primarily lose smaller, less liquid and higher B/P firms within each country. As a result, the composition of firms aggregated to the country level, are likely to be those with lower expectations of earnings growth. Consistent with Eq. (2), E/P should be relatively more important in this case. The results in panel B of Table 6 show that E/P has significant explanatory power for country level stock returns and the role of B/P is reduced. More importantly, D/P continues to be insignificant.

4.2 B/P and risky subsequent earnings growth

A necessary condition for the association between B/P and country level stock returns to be attributable to risk, is that B/P must also be positively associated with subsequent earnings growth. This result has been shown at the firm level (see Penman, Reggiani, Richardson and Tuna, 2013). In Table 7 we present evidence on the first and second moments of subsequent earnings growth across countries based on country level B/P. Specifically, each month we sort the 30 countries into quintiles based on B/P. For each quintile we then compute realized

earnings growth for a period of one year which starts one year after the quintile formation month. We label this measure of subsequent earnings growth as 'Two Years Ahead' earnings growth in Table 7. As suggested by Eq. (2), B/P is a candidate measure of subsequent earnings growth and as such we compute earnings growth skipping the first year. We find that the highest B/P quintile has subsequent earnings growth of 16.7% compared with only 4.9% for the lowest B/P quintile, a significant 11.8 percentage points higher. Thus, the link between B/P and subsequent earnings growth appears to be validated. Furthermore, we also find that second moment measures of subsequent earnings growth are strongly positively related to country level B/P. The average dispersion (inter-quintile range) in subsequent earnings growth is 62.2 (56.2) percent for the highest B/P countries. The corresponding numbers for the lowest B/P countries are 33.2 (43.1) percent. The next three rows repeat the analysis but instead use subsequent growth in residual earnings. To measure residual income at the country level, we first aggregate earnings across firms and then subtract the country specific risk free rate multiplied by the sum of book value of equity across firms. We see very similar, and striking, differences in the first and second moments of subsequent growth in residual earnings across low and high B/P countries.

Finally, the last three rows of Table 7 report the associations between country level sorts on B/P and future growth in dividends. Prior literature has found that while D/P is positively associated with future country level returns, it is negatively associated with future dividend growth. Our analysis thus far has shown that (i) D/P is crowded out by E/P and B/P, and (ii) B/P is positively associated with subsequent earnings growth. If payout ratios were constant and all firms were paying dividends, we would expect a strong positive association between country level B/P and subsequent growth in dividends. We find the opposite, which suggests that aggregate payout ratios are declining in the higher B/P countries. This is attributable to high B/P

countries containing fewer firms that pay dividends. In unreported results we have also repeated this analysis by first sorting countries on D/P and then assessing first and second moments of subsequent growth in dividends. Consistent with prior literature we find that high (low) D/P countries have lower (higher) subsequent growth in dividends. In any case, it is not growth in dividends that is the key determinant of expected returns. Eq. (2) emphasizes that it is expectations of subsequent earnings growth that are the source of risk for common equity holders.

In an attempt to identify a sufficient condition for B/P as a characteristic to reflect risk, we assess *conditional* relations between realized country earnings growth and realized global earnings growth across country B/P quintiles. Specifically, using the same country B/P quintile sorts from Table 7, we now assess the co-movement of subsequent earnings growth for each country with subsequent earnings growth for all countries combined (i.e., 'global'). It is important to note that our measure of co-movement is based on fundamentals (i.e., earnings growth) for a future period (i.e., starting one year after the country B/P sort). For our conditional analysis we use the full period to identify negative and positive (and associated extreme outcomes) of global earnings growth. For our sample of 210 months (we lose the last year of data as we require future earnings growth), we have 60 (150) months where there is contraction (expansion) in earnings growth globally. In Table 8 and Figure 1, to emphasize the conditional nature of the positive relation between B/P at the country level and subsequent earnings growth, we further partition the contraction and expansion months into extreme periods (±1.0 and ±0.5 standard deviation away from the mean global earnings growth).

A key theme from Table 8 and Figure 1 is that there is a clear positive correlation between country level earnings growth and global earnings growth. This simply states that there

is a fundamental component to beta (e.g., Beaver, Kettler and Scholes, 1970). The more interesting result is that this positive relation is stronger in 'bad' states of the world, and particularly so for the high B/P countries. As can be seen from the first two columns of Table 8 as well as Panel A of Figure 1, there is a striking increase in the fundamental beta (as reflected in earnings growth) for high B/P countries relative to low B/P countries. This supports B/P as a valid risk based characteristic to explain variation in country level stock returns. In unreported analysis, we find very similar asymmetric relations if we instead use global stock returns instead of global earnings growth as the basis for determining conditional relations.

In Table 6, we highlighted results where B/P was less significant in explaining country level MSCI returns. Firms included in the MSCI country indices tend to be larger and more liquid with arguably lower expectations of future earnings growth. Hence we expect to see the relative role of B/P to matter less. We now test this implication from Eq. (2) more formally: B/P is associated with future returns because of its ability to capture expectations of subsequent *risky* earnings growth. There are two ways we undertake these tests. First, as reported in Table 9 we sort countries ex ante based on observable characteristics that we believe capture cross-country differences in expectations of earnings growth. Our priors are that (i) smaller countries have higher expected earnings growth, (ii) emerging markets have higher expected earnings growth, and (iii) countries with greater dispersion in beliefs about real GDP growth have higher expected earnings growth. Second, as reported in Table 10 we can control for realizations of subsequent earnings growth ex post.

The results in Table 9 largely confirm our priors. Comparing models I and II, we see that E/P(+) is relevant for the larger countries, and B/P is important for the smaller countries. D/P is crowded out for both large and small countries. Note with this partition we are only reporting

results for the largest and smallest quartiles, roughly half the sample is excluded across models I and II. Comparing models III (or IV) and V, we see that E/P matters more for developed countries, and B/P matters more for emerging markets. Again, D/P is crowded out for both developed and emerging markets. Finally, comparing models VI and VII, we see that E/P (B/P) matters more for countries with lower (higher) dispersion in real GDP forecasts. Collectively, the results in Table 9 are consistent with the implication of Eq. (2) that the relative roles of E/P and B/P as measures of expected returns varies with expectations of subsequent earnings growth.

The results in Table 10 offer very strong support for B/P as a risk based characteristic. Our previous analysis has shown that B/P is associated with subsequent earnings growth at the country level both in first and second moments (Table 7) and conditionally high B/P countries have higher fundamental betas in 'bad' states of the world (Table 8 and Figure 1). All of this analysis suggested that B/P is associated with future returns because it captures expectations of risky subsequent earnings growth. Thus, if we were to include realizations of subsequent earnings growth, the predictive power of B/P for future country level stock returns should decline (see Fama 1990). As reported in Table 10 we find strong evidence in support of this prior. Model I in Table 10 is a repeat of model II of Table 5 for the reduced sample of 5,900 country months as we require realizations of earnings growth over the subsequent year. We continue to see the joint significance of E/P and B/P and the crowding out of D/P. The remaining models include various combinations of 'bottom-up' and 'top-down' measures of realized country level earnings growth. The 'bottom-up' measure is based on aggregating firm level sell-side analyst earnings forecasts. The 'top-down' measure is simply the 12 month ahead real GDP forecast from Consensus Economics. In our regression specifications we capture realized earnings growth by tracking changes in expectations across firm level analysts ('bottom-

up') and macro analysts ('top-down'). For the 'bottom-up' measures the changing expectations is reflected in the ($Earnings_{t+2}$ – $Earnings_{t+1}$)/P and ($Earnings_{t+3}$ – $Earnings_{t+1}$)/P variables. For the 'top-down' measures the changing expectations is reflected in the E_{t+1}[GDP Growth $Forecast_{t+2}$] and E_{t+2}[GDP Growth $Forecast_{t+3}$] relative to the time t real GDP forecast (which is also included in the regression). Across all models we see that including the various measures of realized earnings growth leads to significant increases in explanatory power and, more importantly, B/P loses its significance. Notably, in models VII-IX B/P is completely crowded out by realized earnings growth, while E/P retains its significance.

4.3 Extensions and limitations

4.3.1 Industrial production as an alternative measure of country level growth

Our tabulated results use expectations of real GDP growth from Consensus Economics. We chose this country level forecast as it provided the greatest coverage across countries and across time periods. We have repeated all of our analyses using a smaller set of 4,886 country-months using 12 month ahead forecasts of growth in industrial production (IP). These forecasts are also from Consensus Economics. We find very similar results to those tabulated. One point of difference is the slight reduction in explanatory power in Table 10 when we switch real GDP growth forecasts for IP growth forecasts. We find that the adjusted R^2 of the full model reported in column VIII of Table 10 drops from to 0.31 to 0.27.

4.3.2 The curious case of Japan

In model III of Table 9 we have excluded Japan from the analysis. This is primarily due to the fact that significant equity cross-holdings of large firms in the Japanese market limits the information content of E/P and B/P to capture subsequent earnings growth attributable to the

operating performance of these companies. This is most likely to impair the ability of B/P to indicate future earnings growth. To the extent that cross-holdings are reflected in the balance sheet at fair values or at values that bear no correspondence to their value creation, we would expect B/P to matter less for Japan. After excluding Japan from the analysis, overall we find very similar results, in that E/P and B/P matter and D/P is crowded out, but we find some evidence that the coefficient on B/P is larger when Japan is excluded from the set of developed markets (statistically different with a test statistic of 4.73 for the difference).

4.3.3 Issues with lack of comparability in accounting numbers across countries

Accounting standards, and the quality of enforcement of those standards, are likely to differ across countries which will affect cross-sectional inferences about the predictive ability of characteristics based on accounting numbers. While IFRS harmonization mitigates this concern for countries that use IFRS, accounting differences create at least two problems. Firstly, different accounting treatments for similar economic transactions will dictate how earnings and book values of equity are recorded. This will affect the ability of characteristics based on earnings and book equity to provide information about subsequent earnings growth. Secondly, different quality of accounting information across countries may affect the way accounting fundamentals are reflected in prices and returns.

To help mitigate these concerns, our empirical analyses also include specifications based on country level 'fixed effects'. To do this in a predictive setting, we simply difference each explanatory variable based on an expanding window for each country. Thus, these specifications remove any time invariant factors that could be confounding our analysis. With these alternative specifications, our primary findings continue to hold: (i) D/P is 'crowded' out by E/P and B/P,

with E/P and B/P together capturing meaningful variation in future country level stock returns (columns III and IV of Table 5), and (ii) B/P is associated with future risky earnings growth and this effect is 'removed' by controlling for future realizations of earnings growth (column VIII of Table 10).

4.3.4 Alternative measure of dividends

All of our tabulated analysis is based on common dividends paid by firms. There are alternative methods for firms to distribute free cash flow to shareholders, and these could vary significantly across countries for a variety of reasons (e.g., taxation rules). Likewise, a focus on dividends ignores the 'negative' dividend implicit in equity financing. In unreported analyses, we have computed 'net' dividends as cash paid for common dividends plus cash paid for common stock repurchases less cash raised from common stock issuance. For this alternative measure of dividends, we continue to find that D/P is crowded out by E/P and B/P. For example, equivalent specifications to those tabulated in Table 3 and 4, find that D/P measured using 'net' dividends is significant on a stand-alone basis with an adjusted R^2 of 0.045 (0.012) in Fama-Macbeth (panel) regressions. However, D/P measured using 'net' dividends, is no longer significant after inclusion of E/P and B/P. Test statistics on D/P are 0.23 (-0.21) in Fama-Macbeth (panel) regressions, confirming that E/P and B/P continue to crowd out the ability of D/P to explain future country level returns. Furthermore, using this broader measure of dividend yield reduces the relative importance of D/P in explaining variation in country level returns. Using model XI from Table 4 as our basis for explaining variance and using net dividends, we find that 'net' D/P only accounts for 3.2 percent of the explained variance (compared with 16.8 percent previously).

5. Conclusion

This paper uses an accounting based framework to link expected returns with drivers of earnings growth. Detailed firm level fundamental data is aggregated to develop country level characteristics that are related to expectations of earnings growth and hence should explain country level stock returns. Using a broad sample of 6,600 country-month observations (covering 30 countries over the period March 1993 to June 2011), we find that E/P and B/P jointly explain a significant portion of the cross-sectional variation in country level stock returns. Notably, D/P is irrelevant after controlling for B/P and E/P. This is consistent with the earnings displacement nature of dividends. Dividends are not a measure of value creation as they reduce the book equity and retained earnings available to generate future earnings growth. Earnings and book equity are directly related to future value creation and subsume the information in dividends (since dividends are linked to earnings through a payout policy).

We further find that countries with high levels of B/P have (i) higher levels of subsequent earnings growth, (ii) greater dispersion in subsequent earnings growth, and (iii) greater sensitivity of subsequent earnings growth to global earnings growth (and global market returns) in downside states. We also find that controlling for ex post realizations of country level earnings growth subsumes the ability of B/P to explain country level returns, as would be expected if B/P is capturing unbiased expectations of future earnings growth. Collectively, this is consistent with B/P reflecting risky earnings growth and supports B/P as a valid characteristic to explain country level returns.

A key implication of our results is that combining measures of value, such as E/P and B/P, offers a theoretically superior way to measure expected returns. It is not simply the case that averaging arbitrarily across multiple fundamental measures (e.g., earnings, book values,

sales, cash flows, or dividends) creates a superior estimate of expected returns. Rather, it is by combining attributes of accounting that reflect the term structure of future earnings growth. Expectations of near term earnings are captured by E/P, and expectations of longer term earnings growth are captured, in part, by B/P. By combining information contained in E/P, and especially B/P, we capture uncertainty in the future realizations of earnings growth, especially in bad states of the world. As uncertainty about future earnings growth is resolved there is a direct lowering of expected returns (i.e., as time passes there is a change in expectations of the term structure of earnings growth).

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Figure 1: Relation between realized earnings growth and global earnings growth for high and low B/P countries

This figure shows three scatter plots of average realized earnings growth two years ahead (on vertical axis) and contemporaneous global earnings growth (on horizontal axis) for the high and low B/P quintiles from Table 7. Each month, quintiles were formed by ranking countries on book-to-price, B/P and only the high and low B/P quintiles were used for the plots. Global earnings growth is calculated using the sum of country-level earnings for the 30 countries over the 210 months from March 1993 to August 2010. While the full sample is 220 months from March 1993 to June 2011, the series is shortened to enable the calculation of growth rates two years ahead. Global earnings growth realizations are partitioned into downside states (1.0 standard deviation below the mean) and upside states (1.0 standard deviation above the mean). Panel A uses downside global earnings growth observations, Panel B uses all 210 monthly observations for global earnings growth, and Panel C uses upside global earnings growth observations. Please also see Table 8 which reports the slope coefficients and statistical significance of the difference in slopes between the high and low B/P portfolios for downside and upside global earnings growth states.

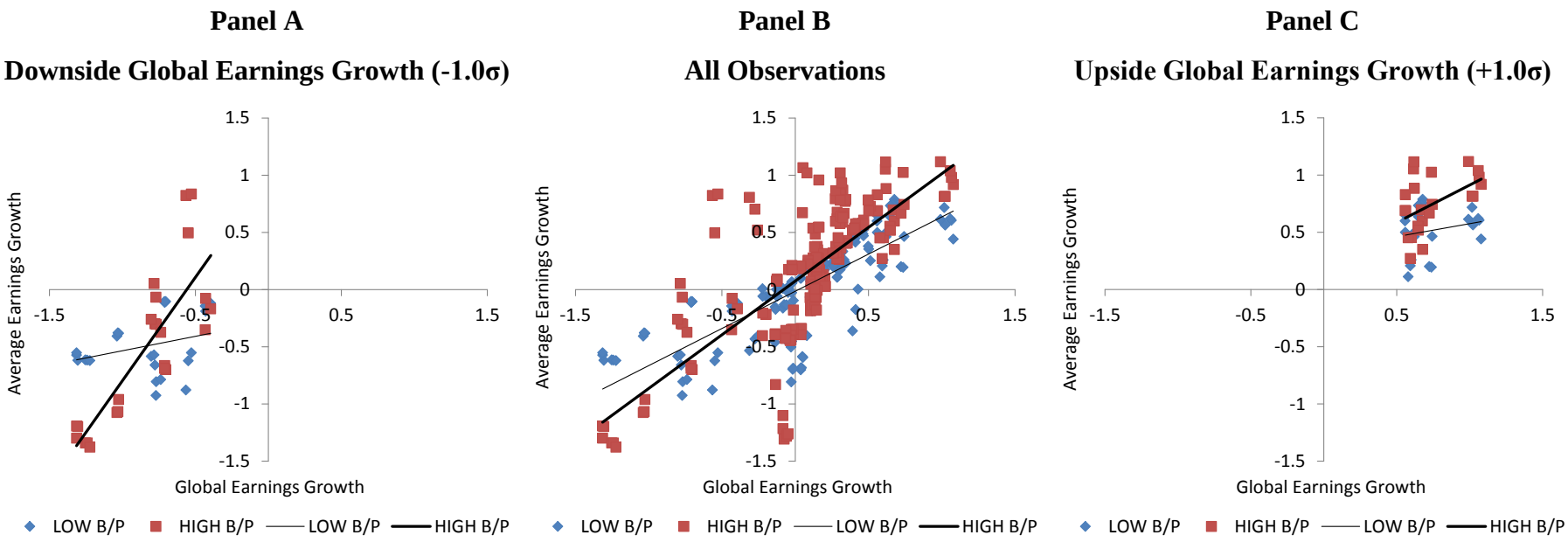

Table 1: Sample composition

This table reports the 30 countries used in the analyses, as well as the average number of firms in each data set. The Value-weighted Returns sample spans 220 months from March 1993 to June 2011, and the MSCI Re-calculated Returns sample spans 163 months from December 1997 to June 2011. For each sample, the table reports the average number of firms in each country with: 1) available fundamental data; and 2) available fundamental as well as I/B/E/S earnings forecasts data. I/B/E/S coverage percentage is the proportion of firms with available fundamental data that also have available I/B/E/S data.

Country	Value-weighted Returns			MSCI Re-calculated Returns		
	Firms with Fundamental Data	Firms with Fundamental and I/B/E/S Data	I/B/E/S Coverage	Firms with Fundamental Data	Firms with Fundamental and I/B/E/S Data	I/B/E/S Coverage
Australia	448	231	52%	59	58	98%
Austria	54	33	61%	13	13	100%
Belgium	71	52	73%	15	15	100%
Canada	789	291	37%	84	58	69%
China	579	223	39%	56	55	98%
Denmark	93	57	61%	16	15	94%
Finland	79	63	80%	19	18	95%
France	388	251	65%	59	58	98%
Germany	417	257	62%	47	42	89%
Great Britain	841	582	69%	113	109	96%
Hong Kong	113	54	48%	27	27	100%
India	405	165	41%	56	53	95%
Indonesia	118	57	48%	22	20	91%
Israel	108	39	36%	26	17	65%
Italy	183	121	66%	37	31	84%
Japan	2,714	907	33%	312	298	96%
Malaysia	416	169	41%	57	51	89%
Netherlands	114	96	84%	23	22	96%
New Zealand	51	39	76%	9	9	100%
Norway	100	78	78%	15	14	93%
Portugal	32	22	69%	10	9	90%
Singapore	251	103	41%	30	29	97%
South Africa	139	91	65%	38	38	100%
South Korea	575	144	25%	78	58	74%
Spain	89	75	84%	28	28	100%
Sweden	153	104	68%	34	30	88%
Switzerland	160	118	74%	33	28	85%
Taiwan	568	149	26%	90	75	83%
Thailand	219	99	45%	24	21	88%
USA	4,276	2,993	70%	453	442	98%
Total Firms	14,543	7,663	53%	1,883	1,741	92%
Firm-months	3,198,930	1,685,724	53%	306,894	283,807	92%

Table 2: Distribution of variables

This table reports means, standard deviations and selected percentiles of variables across 30 countries and 220 months from March 1993 to June 2011 (*N*=6,600, except as noted). Variables are at the country level using all firms with available fundamental and I/B/E/S forecast data.

	N	Mean	Std. Dev.	P1	P5	P10	P25	P50	P75	P90	P95	P99
E/P	6,600	0.052	0.034	-0.059	0.008	0.022	0.039	0.054	0.066	0.081	0.095	0.145
E/P(+)	6,600	0.054	0.027	0.000	0.008	0.022	0.039	0.054	0.066	0.081	0.095	0.145
Negative E/P	6,600	0.040	0.196	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
B/P	6,600	0.509	0.197	0.192	0.275	0.309	0.384	0.474	0.593	0.736	0.863	1.172
D/P	6,600	0.024	0.013	0.005	0.008	0.011	0.015	0.022	0.030	0.038	0.047	0.074
Momentum	6,600	0.101	0.250	-0.446	-0.304	-0.207	-0.048	0.107	0.232	0.376	0.495	0.849
Size	6,600	12.139	1.621	8.465	9.511	10.051	11.135	12.046	13.141	14.266	14.945	16.356
Beta	6,600	0.935	0.372	0.124	0.388	0.493	0.690	0.917	1.138	1.423	1.636	1.934
GDP Growth Forecast	6,530	0.031	0.023	-0.023	-0.001	0.010	0.018	0.028	0.042	0.063	0.075	0.094
Inflation Forecast	6,530	0.029	0.028	-0.007	0.005	0.010	0.016	0.023	0.032	0.057	0.081	0.106
Forward E/P	6,600	0.069	0.023	0.023	0.037	0.044	0.056	0.067	0.079	0.096	0.108	0.144

Accounting data are from Compustat for US and Canadian firms and from Factset for international firms. Returns and price data are from CRSP for US firms, and Compustat Global for Canadian and international firms. A maximum of 1,685,724 firm-months with available fundamental data (earnings, book value of equity, and dividends) and I/B/E/S earnings forecast data are aggregated up to the country level.

E/P is an estimate of the forward earnings yield using the realized earnings yield, with earnings defined as earnings before extraordinary items (Compustat item IB, and Factset item FF_NET_INC_BASIC_BEFT_XORD). Earnings are observed at the end of the most recent fiscal period. Where only annual data are available, the most recent fiscal period end is the most recent year end. Where quarterly and semi-annual interim data are available, these are aggregated for the prior four quarters or two semi-annual periods to provide trailing twelve month (TTM) earnings comparable to an annual number. For each country-month, earnings are summed up across all firms in that country with available data. Prices are observed three months after the fiscal period end, and represent the company market capitalization across all share classes that are then summed up to the country level each month. E/P at the country level is calculated using the same firms in the numerator and denominator.

E/P(+) is equal to E/P when positive and 0 otherwise. This is an estimate of forward earnings yield when earnings are strictly positive. Negative E/P is an indicator variable which is 0 when E/P is positive and 1 when E/P is negative.

B/P, the book-to-price ratio, is book value of common equity at the end of the most recent fiscal period (annual, quarterly, or semi-annual). Book value is Compustat's common equity (CEQ) and Factset's shareholders equity (FF_SHLDRS_EQ). For each country-month, book values are summed across all firms in that country with available data. Prices are observed three months after the fiscal period end and represent the company market capitalization across all share classes summed up to the country level each month. B/P is calculated ensuring the numerator and denominator contains the same firms.

D/P, the dividend yield, is common dividends from Compustat (DVC) and Factset (FF_DIV_COM_CF) for the most recent fiscal period. Similar to the E/P calculation, interim periods (quarterly or semi-annual) are used to compute TTM dividends comparable to annual dividends. For each country-month, dividends are summed across all firms with available fundamental and I/B/E/S forecast data. Prices are represented by company market capitalizations across all share classes summed up to the country level each month. D/P is calculated ensuring the numerator and denominator contains the same firms.

Momentum is the value-weighted return for each country over the twelve months prior to the returns measurement period. Size is the natural log of company market capitalizations aggregated up to the country level. Beta for each country is estimated from 36-month rolling regressions of value-weighted monthly country returns on the monthly returns from a global market index represented by the MSCI All Country World Index (MSCI ACWI).

GDP Growth Forecast and Inflation Forecast use macroeconomic forecasts from Consensus Economics for real annual GDP growth and the change in the Consumer Price Index for each country, respectively. The data provided by the vendor is a consensus forecast representing the average of estimates across all contributors including financial firms and economic research organizations. Each month, the one-year ahead and two-year ahead forecasts are time-weighted to provide a 12-month ahead forecast of real annual GDP growth and inflation.

Forward E/P is the ratio of the sum of time-weighted one-year ahead I/B/E/S forecast earnings divided by the sum of market capitalizations for the same firms. Firm-level earnings per share forecasts from I/B/E/S are multiplied by shares outstanding in I/B/E/S for each firm to get forecast total earnings. Each month, a one-year ahead forecast is calculated by time-weighting the forecasts for the one-year and two-year ahead periods. These are then summed up across all firms to compute country level earnings forecasts and are used as the numerator for forward E/P.

Table 3: Average coefficient estimates and test statistics for monthly characteristic regressions

This table reports average coefficient estimates from 220 monthly cross-sectional regressions of 12 month value-weighted country excess returns on time t characteristics from March 1993 to June 2011 along with t-statistics and average adjusted R-squared. The reported t-statistics incorporate a Newey-West correction for 16 lags. The asterisks *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Intercept	0.000	-0.021	0.039	0.002	-0.027	-0.045	-0.034	-0.108**	-0.226	-0.262**	-0.140	-0.096
	(0.01)	(-0.43)	(0.81)	(0.05)	(-0.51)	(-0.85)	(-0.60)	(-2.31)	(-1.61)	(-2.02)	(-1.33)	(-1.03)
E/P(+)	1.344***			1.131***		0.948***	0.875***	0.736***	1.168***	0.943**	1.127***	
	(3.70)			(3.58)		(2.85)	(2.92)	(2.86)	(3.15)	(2.51)	(3.30)	
B/P		0.202***			0.176***	0.140**	0.117**	0.197***	0.220***	0.225***	0.176***	0.131**
		(3.44)			(2.65)	(2.52)	(1.99)	(3.43)	(3.74)	(3.63)	(3.55)	(2.35)
D/P			1.890**	0.603	0.954		0.242	0.228	-0.072	-0.204	-1.114	-0.925
			(2.09)	(0.75)	(0.95)		(0.28)	(0.27)	(-0.08)	(-0.21)	(-1.31)	(-0.95)
Momentum								0.266**	0.260**	0.302***	0.249**	0.259**
								(2.28)	(2.20)	(2.78)	(2.58)	(2.59)
Size									0.008	0.009	0.004	-0.001
									(1.08)	(1.36)	(0.70)	(-0.18)
Beta										0.038	0.028	0.035
										(1.13)	(0.77)	(1.10)
GDP Growth Forecast											-0.003	-0.001
											(-0.25)	(-0.11)
Inflation Forecast											0.003	-0.004
											(1.37)	(-0.98)
Forward E/P												1.521***
												(3.38)
Negative E/P	0.088			0.074		0.044	0.044	0.036	0.046	0.057	0.052	
	(1.32)			(1.17)		(0.81)	(0.78)	(0.67)	(0.86)	(1.02)	(0.94)	
Adj. R-squared	0.074	0.060	0.040	0.087	0.077	0.106	0.112	0.189	0.205	0.247	0.360	0.341
Country-Months	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,530	6,530

Table 4: Coefficient estimates and test statistics for panel regressions

This table reports coefficient estimates from panel regressions of 12 month value-weighted country excess returns on time t characteristics for 6,600 country-months from March 1993 to June 2011 along with t-statistics and adjusted R-squared. Where GDP growth and inflation forecasts are included the number of observations is 6,530 country-months. The t-statistics reported are based on standard errors clustered by country and month. The asterisks *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Intercept	-0.065*	-0.147***	-0.050	-0.097***	-0.166***	-0.185***	-0.187***	-0.238***	-0.199	-0.207	-0.080	-0.098
	(-1.95)	(-3.11)	(-1.62)	(-2.73)	(-3.80)	(-4.09)	(-4.22)	(-4.87)	(-1.44)	(-1.49)	(-0.40)	(-0.45)
E/P(+)	2.558***			1.444**		1.292**	0.892*	1.146**	1.122*	1.119*	1.432**	
	(4.24)			(2.32)		(2.41)	(1.69)	(2.09)	(1.93)	(1.94)	(2.56)	
B/P		0.441***			0.352***	0.378***	0.334***	0.380***	0.373***	0.374***	0.344***	0.323**
		(4.41)			(3.42)	(3.85)	(3.17)	(3.30)	(3.20)	(3.19)	(2.86)	(2.49)
D/P			5.317***	3.874***	2.674*		1.898	2.103	2.128	2.125	1.018	1.625
			(4.42)	(3.11)	(1.80)		(1.18)	(1.29)	(1.29)	(1.29)	(0.71)	(1.18)
Momentum								0.145***	0.143***	0.144***	0.147***	0.146***
								(2.76)	(2.75)	(2.76)	(2.94)	(2.80)
Size									-0.003	-0.003	-0.008	-0.008
									(-0.30)	(-0.32)	(-0.67)	(-0.68)
Beta										0.010	0.015	0.011
										(0.36)	(0.48)	(0.35)
GDP Growth Forecast											-0.013	-0.013
											(-1.37)	(-1.12)
Inflation Forecast											-0.001	-0.001
											(-0.27)	(-0.34)
Forward E/P												1.407**
												(2.09)
Negative E/P	0.151**			0.098		0.039	0.026	0.030	0.027	0.026	0.020	
	(2.00)			(1.32)		(0.45)	(0.33)	(0.41)	(0.36)	(0.34)	(0.28)	
Adjusted R-squared	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,530	6,530	6,530
Country-Months	0.042	0.082	0.053	0.062	0.092	0.091	0.092	0.095	0.106	0.106	0.114	0.112
Time Fixed Effects	No	No	No	No	No	No	No	No	No	No	No	No
Country Fixed Effects	No	No	No	No	No	No	No	No	No	No	No	No

Table 5: Coefficient estimates and test statistics for panel regressions

This table reports coefficient estimates from panel regressions of 12 month value-weighted country excess returns on time t characteristics for 6,530 country-months from March 1993 to June 2011 along with t-statistics and adjusted R-squared. The t-statistics reported are based on standard errors clustered by country and month. The asterisks *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	I	II	III	IV
Intercept	-0.098			
	(-0.45)			
Forward E/P	1.407**	1.272*	2.170***	1.149*
	(2.09)	(1.93)	(3.36)	(1.95)
B/P	0.323**	0.208**	0.226*	0.223*
	(2.49)	(2.04)	(1.68)	(1.87)
D/P	1.625	0.716	1.389	-0.161
	(1.18)	(0.66)	(0.90)	(-0.12)
Momentum	0.146***	0.189***	0.154***	0.168**
	(2.80)	(2.68)	(3.05)	(2.51)
Size	-0.008	0.002	-0.050	-0.023
	(-0.68)	(0.20)	(-1.43)	(-0.86)
Beta	0.011	0.017	-0.020	-0.021
	(0.35)	(0.67)	(-0.52)	(-0.66)
GDP Growth Forecast	-0.013	-0.004	-0.044***	-0.031**
	(-1.12)	(-0.45)	(-3.49)	(-1.99)
Inflation Forecast	-0.001	-0.001	-0.013**	-0.007*
	(-0.34)	(-0.15)	(-1.96)	(-1.69)
Adjusted/Within R-squared	0.112	0.064	0.180	0.105
Country-Months	6,530	6,530	6,530	6,530
Time Fixed Effects	No	Yes	No	Yes
Country Fixed Effects	No	No	Yes	Yes

Table 6: Average coefficient estimates and test statistics for monthly characteristic regressions over different horizons

This table reports average coefficient estimates from 220 monthly cross-sectional regressions of forward country excess returns on time t characteristics from March 1993 to June 2011 along with t-statistics and average adjusted R-squared. The dependent variable in Panel A is the value-weighted country excess returns using firms in each country with available fundamental and I/B/E/S data, and the independent variables are calculated using the same firms aggregated up to the country level. Similarly, the dependent variable in Panel B is the MSCI re-calculated returns using firms in each country with available fundamental and I/B/E/S data. The reported t-statistics incorporate a Newey-West correction for possible serial correlation with 5, 7, 10 and 16 lags for the 1, 3, 6 and 12 month return horizons, respectively. The asterisks *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	Panel A: Value-weighted				**Panel B: MSCI Re-calculated**			
	1 Month	3 Months	6 Months	12 Months	1 Month	3 Months	6 Months	12 Months
	k=1	*k*=3	*k*=6	*k*=12	*k*=1	*k*=3	*k*=6	*k*=12
Intercept	-0.034***	-0.103***	-0.179**	-0.262**	-0.011	-0.030	-0.045	-0.035
	(-3.09)	(-2.80)	(-2.54)	(-2.02)	(-1.35)	(-1.20)	(-0.99)	(-0.42)
E/P(+)	0.114**	0.321**	0.569**	0.943**	0.114***	0.267***	0.450***	0.603**
	(2.31)	(2.21)	(2.20)	(2.51)	(3.62)	(3.46)	(3.02)	(2.50)
B/P	0.018***	0.057***	0.109***	0.225***	0.007	0.017	0.037	0.124**
	(3.23)	(3.26)	(3.51)	(3.63)	(1.08)	(0.96)	(1.31)	(2.37)
D/P	0.102	0.278	0.224	-0.204	-0.065	-0.012	-0.263	-0.902
	(1.15)	(1.15)	(0.45)	(-0.21)	(-0.70)	(-0.05)	(-0.51)	(-0.92)
Momentum	0.018*	0.069**	0.161***	0.302***	0.007	0.054**	0.126***	0.226***
	(1.76)	(2.27)	(2.76)	(2.78)	(0.61)	(2.28)	(3.41)	(3.48)
Size	0.001**	0.004**	0.007*	0.009	0.001	0.001	0.001	-0.002
	(2.55)	(2.24)	(1.93)	(1.36)	(1.18)	(0.72)	(0.35)	(-0.38)
Beta	0.000	0.007	0.020	0.038	-0.002	0.003	0.019	0.027
	(0.10)	(0.75)	(1.22)	(1.13)	(-0.46)	(0.24)	(0.91)	(0.92)
Negative E/P	0.005	0.014	0.028	0.057	0.005*	0.014*	0.026	0.037
	(0.99)	(0.95)	(0.88)	(1.02)	(1.82)	(1.70)	(1.47)	(1.06)
Adj. R-squared	0.226	0.247	0.258	0.247	0.268	0.255	0.245	0.225
Country-Months	6,600	6,600	6,600	6,600	4,890	4,890	4,890	4,890

Table 7: Average realized earnings growth and dividend growth two years ahead for country portfolios sorted on B/P

This table reports average growth rates and variability in growth rates for earnings, residual earnings and dividends two years ahead (months 12 to 24) for five portfolios formed each month from March 1993 to August 2010, by ranking countries on book-to-price, B/P. The series is shortened to enable the calculation of growth rates two years ahead and comprises 6,300 country-months (210 months for each of the 30 countries). To accommodate negative denominators, growth rates are calculated as $\Delta Earnings_{t+2}/((|Earnings_{t+2}|+|Earnings_{t+1}|)/2)$. The table also reports the average monthly standard deviation and inter-quintile range of two year ahead growth rates for each of the five B/P quintiles. Residual $Earnings_t$ = $Earnings_t$ – (Rf_t * Book Value of $Equity_{t-1}$). The t-statistics for the difference in mean and average standard deviation between the high B/P and low B/P portfolios are adjusted for overlapping monthly observations.

	B/P						
	LOW	**2**	**3**	**4**	**HIGH**	**HIGH – LOW**	***t-stat***
Average Earnings Growth Two Years Ahead (%)	4.9	7.3	11.8	15.5	16.7	11.8	*(2.30)*
Average Standard Deviation of Forward Earnings Growth	33.2	34.6	42.2	51.3	62.2	29.0	*(4.52)*
Inter-quintile Range of Forward Earnings Growth	43.1	41.1	48.4	48.7	56.2	13.1	
Average Residual Earnings Growth Two Years Ahead (%)	-10.5	5.8	18.0	23.5	32.9	43.3	*(3.36)*
Average Standard Deviation of Forward Residual Earnings Growth	56.1	63.3	74.0	78.2	84.4	28.3	*(3.82)*
Inter-quintile Range of Forward Residual Earnings Growth	67.4	71.3	82.2	102.8	127.7	60.2	
Average Dividend Growth Two Years Ahead (%)	11.3	10.6	8.6	5.9	1.6	-9.7	*(-2.77)*
Average Standard Deviation of Forward Dividend Growth	9.4	20.8	18.6	20.8	22.8	13.4	*(1.72)*
Inter-quintile Range of Forward Dividend Growth	24.7	24.7	26.4	28.8	30.0	5.4	

Table 8: Relation between realized earnings growth and global earnings growth for high and low B/P countries

This table reports the slope coefficients from regressions of average realized earnings growth two years ahead on contemporaneous global earnings growth for the high and low B/P portfolios from Table 7. Global earnings growth is calculated using the sum of country-level earnings for the 30 countries over the 210 months from March 1993 to August 2010. Global earnings growth is partitioned into negative and positive global earnings growth realizations, as well as those that are over ±1.0 and ±0.5 standard deviation away from the mean global earnings growth. Each column reports the slope coefficient of the high and low B/P portfolios for the different partitions of global earnings growth realizations. The difference in slope coefficients between the high and low B/P portfolios for each partition is also reported with an asterisk indicating statistical significance at the 1% level. The number of months available for estimating each slope coefficient is also reported. Please also see Figure 1 which graphically depicts the slope coefficients for downside (–1.0σ from the mean) and upside (+1.0σ from the mean) global earnings growth in Panel A and Panel C, respectively.

	–1.0σ	–0.5σ	Negative	Positive	+0.5σ	+1.0σ
HIGH B/P	1.810	1.113	0.509	0.949	0.403	0.655
LOW B/P	0.252	0.387	0.292	0.709	0.523	0.226
HIGH – LOW	1.557*	0.726*	0.217	0.240	-0.120	0.429
Number of Months	24	36	60	150	48	29

Table 9: Panel regressions for cross-sectional country partitions

This table reports coefficient estimates from panel regressions of 12 month excess returns on time t characteristics for the time period March 1993 to June 2011 along with t-statistics and R-squared. For the samples used in models I and II, four portfolios were formed each month by ranking countries on size. The smallest and largest size portfolio results are reported in model I and model II respectively. Model III classifies 20 of the 30 countries as Developed Markets including Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Hong Kong, Italy, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and USA. Model IV adds Japan. Model IV classifies 9 countries as Emerging Markets including China, India, Indonesia, Israel, Malaysia, South Africa, South Korea, Taiwan and Thailand. For Models V and VI, four monthly portfolios were formed by ranking countries on GDP growth forecast variability. The t-statistics reported are based on standard errors clustered by country and month.

	I	II	III	IV	V	VI	VII
	Largest Size Quartile	Smallest Size Quartile	Developed Markets (excl. Japan)	Developed Markets (incl. Japan)	Emerging Markets	Low GDP Forecast Variability	High GDP Forecast Variability
E/P(+)	1.753***	0.143	0.983***	1.132***	0.660	2.103**	0.866
	(2.71)	(0.14)	(2.64)	(2.87)	(0.85)	(2.19)	(1.43)
E/P(+) difference t-stat	I vs. II:	(-4.90)		IV vs. V:	(-1.52)	VI vs. VII:	(-2.44)
B/P	0.053	0.520***	0.176**	0.127**	0.349**	-0.041	0.332***
	(0.78)	(2.59)	(2.43)	(2.12)	(2.03)	(-0.27)	(4.34)
B/P difference t-stat	I vs. II:	(5.40)		IV vs. V:	(2.27)	VI vs. VII:	(2.08)
D/P	-1.142	-0.459	-1.005	-0.410	1.469	-1.307	-0.242
	(-1.13)	(-0.14)	(-1.18)	(-0.45)	(0.54)	(-0.54)	(-0.16)
Momentum	0.007	0.134	0.189***	0.178***	0.103	0.098	0.069
	(0.11)	(1.27)	(3.24)	(3.05)	(1.01)	(0.71)	(0.63)
Size	-0.012	0.072**	0.004	0.000	0.000	-0.008	-0.005
	(-1.00)	(2.24)	(0.54)	(0.05)	(0.05)	(-0.67)	(-0.37)
Beta	0.008	-0.029	-0.000	-0.004	-0.004	0.034	-0.021
	(0.28)	(-0.64)	(-0.01)	(-0.19)	(-0.19)	(0.93)	(-0.41)
Negative E/P	-0.021	0.161	0.017	0.007	0.007	0.002	0.149
	(-0.90)	(1.48)	(0.33)	(0.16)	(0.16)	(0.03)	(1.09)
Within R-squared	0.064	0.112	0.040	0.042	0.115	0.076	0.123
Country-Months	1,540	1,540	4,400	4,620	1,980	1,033	1,189
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	No	No	No	No	No	No	No

Table 10: B/P and realized subsequent earnings growth

This table reports coefficient estimates from panel regressions of 12 month excess returns on time t characteristics and proxies for realization of earnings growth. The series is shortened to enable the calculation of growth rates and comprises 5,900 country-months. $(Earnings_{t+2} - Earnings_{t+1})/P$ is the realized change in earnings from year one to year two scaled by price at time t, and $(Earnings_{t+3} - Earnings_{t+1})/P$ is the realized change in earnings from year one to year three scaled by price at time t. $E_{t+1}[GDP\ Growth\ Forecast_{t+2}]$ and $E_{t+2}[GDP\ Growth\ Forecast_{t+3}]$ are the forecasts one year and two years from time t for one-year ahead GDP growth. The t-statistics reported are based on standard errors clustered by country and month. The asterisks *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	I	II	III	IV	V	VI	VII	VIII
Forward E/P	1.296*	1.487***	1.314**	1.711***	1.457***	1.624***	1.626***	1.460***
	(1.84)	(2.69)	(2.38)	(2.77)	(2.93)	(3.23)	(4.16)	(3.18)
B/P	0.235**	0.182*	0.133	0.203**	0.102	0.111	0.050	0.152
	(2.08)	(1.81)	(1.08)	(2.07)	(1.14)	(1.27)	(0.52)	(1.24)
D/P	0.810	0.886	1.589	0.736	0.461	0.489	1.064	0.738
	(0.64)	(0.80)	(1.54)	(0.59)	(0.46)	(0.46)	(1.22)	(0.56)
Momentum	0.191***	0.155**	0.150**	0.058	0.068	0.027	0.008	-0.006
	(2.65)	(2.25)	(2.18)	(0.78)	(1.10)	(0.40)	(0.12)	(-0.11)
Size	0.002	0.002	0.002	0.005	0.001	0.003	0.003	-0.011
	(0.24)	(0.22)	(0.24)	(0.60)	(0.22)	(0.43)	(0.45)	(-0.42)
Beta	0.018	0.007	0.007	0.011	-0.003	-0.002	-0.009	-0.015
	(0.69)	(0.30)	(0.28)	(0.48)	(-0.13)	(-0.10)	(-0.40)	(-0.51)
GDP Growth Forecast	-0.006	0.000	-0.001	-0.059***	-0.055***	-0.071***	-0.064***	-0.051***
	(-0.60)	(0.02)	(-0.10)	(-3.73)	(-4.54)	(-4.59)	(-4.03)	(-3.04)
Inflation Forecast	-0.001	-0.010***	-0.010***	-0.007*	-0.009**	-0.011**	-0.016***	-0.013**
	(-0.35)	(-2.68)	(-2.99)	(-1.91)	(-2.18)	(-2.46)	(-4.03)	(-2.25)
$(Earnings_{t+2} - Earnings_{t+1})/P$		1.718***						
		(3.09)						
$(Earnings_{t+3} - Earnings_{t+1})/P$			1.426***				1.002***	0.960***
			(3.49)				(3.14)	(3.04)
$E_{t+1}[GDP\ Growth\ Forecast_{t+2}]$				0.068***		0.032***	0.032***	0.039***
				(4.92)		(3.60)	(3.22)	(3.69)
$E_{t+2}[GDP\ Growth\ Forecast_{t+3}]$					0.073***	0.059***	0.054***	0.058***
					(6.46)	(6.99)	(7.52)	(7.19)
Within R-squared	0.071	0.153	0.133	0.179	0.253	0.271	0.301	0.308
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	No	No	No	No	No	No	No	Yes