

Heterogenous Earnings Growth Paths and the Risk Resolution Role of Earnings: An
Examination of the Earnings Announcement Risk Premium

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Abstract

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I establish a link between the heterogeneity in firms' expected earnings growth paths and the earnings announcement risk premium. My evidence suggests that variation in the expected timing of earnings growth conveys ex-ante information about variation in the expected resolution of uncertainty across stocks that shapes the cross-section of investors' expected returns around earnings announcements. This return pattern arises cross-sectionally but also within-firm over time as each firm is expected to have its own earnings growth path. Moreover, this return pattern only arises on earnings announcement days and not in non-announcing days, consistent with variation in the earnings announcement risk premium and not another phenomenon. Connecting the risk resolution role of earnings to the magnitude of investors' expected returns around earnings announcements provides support to accounting theory that establishes a link between information conveyed by financial reporting and risk.

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Finally, I would like to acknowledge that getting an education and graduating from the University of Washington relies on the opportunities that I have been presented in life. Opportunities that are not available for everyone. I owe it to society to give my best in the classroom when educating the next generation of students. I owe it to society to give my best when doing teaching, research, and service to help reduce inequalities that prevent certain groups from full participation in certain areas, such as academic institutions and the business workforce.

Dedication

To my family.

My spouse, Fiona Pan.

My parents, Edgar Rodriguez-Velazquez and Aida Vazquez-Vazquez.

My brother, Alex Rodriguez-Vazquez.

Your support and motivation were a key part of this journey.

I. INTRODUCTION

Investors face uncertainty in making investment decisions and they demand a required rate of return (i.e., expected returns) that compensates them for bearing risk. For example, investors face the uncertainty that firms' expected earnings growth may not be realized. This uncertainty arises not only from the *magnitude* but also the *timing* of when earnings growth is expected to accrue. Because firms in the economy are dynamic, it is reasonable to expect heterogeneity in the timing of expected earnings growth realizations and how uncertainty is resolved over time. In this paper, I examine whether heterogeneity in firms' expected earnings growth paths is associated with investors' expected returns for holding risky securities around earnings announcements.

Consider, for instance, three firms, Delta Air Lines, Inc. (Delta), Angiodynamics, Inc. (Angio), and Starbucks Corp. (Starbucks), for which investors at the end of their 2017 fiscal year expected each firm's EPS to grow 12-13 percent, on average, over the subsequent three to five years.¹ Although each company is expected to have a similar increase (in relative terms) in the magnitude of earnings growth, the timing of when this growth is expected to concentrate significantly differs between companies. Delta expected more earnings growth acceleration *earlier* in the horizon. Indeed, Delta's 2017-Q4 press release stated that "Looking ahead to 2018, we expect to drive solid earnings growth by growing our top line 4 to 6 percent, improving our cost trajectory and integrating our international partner network." Analysts' earnings consensus also reflected this information with the one-year ahead earnings forecast implying a year-over-year growth rate of over 25 percent. In contrast, Angio, a provider of medical devices, expected more earnings growth acceleration *later* in the horizon. At their Investor Day meeting held on April 6,

¹ This rate represents an annualized earnings growth rate over the subsequent three to five years and is used in the literature to proxy for the *annualized* expected magnitude of long-term growth (e.g., La Porta 1996; Dechow and Sloan 1997; Bordalo, Gennaioli, Porta, and Shleifer 2019).

2017, management of Anglo graphed their expected earnings growth path and referred to it as the “Adjusted EPS J-Curve Profile” in a clear reference that higher rates of earnings growth will concentrate later in the horizon (see Appendix A for illustration). Analysts’ one-year ahead EPS consensus also implied an expected decline in year-over-year earnings. Finally, Starbucks’ short-term and long-term earnings growth guidance and the corresponding analysts’ earnings consensus suggested a *linear* earnings growth path with their one-year ahead expected growth rate closely resembling the 13 percent long-term annualized expected growth rate. In essence, while these firms are each expected to accrue 12-13 percent EPS growth, on average, over the next years, variation in the expected timing of when this growth accrues suggests that firms are expected to exhibit *heterogenous earnings growth paths*. I examine whether this heterogeneity in expected earnings growth paths is associated with investors’ expected returns around earnings announcements.

Although accounting research typically focuses on how earnings announcements provide information that revises investors’ expectations of future cash flows (cash flow news), recent research has portrayed the importance of information releases in providing information about risk and its resolution. For example, Smith and So (2021) find that information in announcements revises investors’ expectations of firms’ risk profiles (discount rate news). Moreover, financial economists study whether variation in the flow of information and uncertainty resolution affect asset pricing as studies continue to explore the notion of time-varying expected returns (e.g., Robiccek and Myers 1966a; Gilbert, Hrdlicka, and Kamara 2018; Ang and Liu 2004). I focus on the latter and examine whether heterogeneity in firms’ expected earnings growth paths influences *the earnings announcement risk premium*. The earnings announcement risk premium is the phenomena that firms experience positive abnormal returns around earnings announcements relative to non-earnings announcement periods or non-earnings announcing firms (e.g., Beaver

1968; Ball and Kothari 1991; Cohen, Dey, Lys, and Sunder 2007). The typical explanation for this premium is that it compensates investors for the risk borne by holding securities around information events that are expected to resolve uncertainty. Although the earnings announcement premium literature typically compares returns between a portfolio of announcers and a portfolio of non-announcers, my objective is to examine whether heterogeneity in expected earnings growth paths is associated with the magnitude of the risk premium *within the announcing group*.

I draw my predictions from accounting theory that connects uncertainty to the amount of earnings expected to be recognized (e.g., Penman and Zhang 2020). Earnings are expected to be recognized when the firm has found a customer and *uncertainties* over cash flow collectability and the satisfaction of performance obligations are substantially resolved.² If these uncertainties are not resolved, earnings are not recognized, and their realization is deferred to the future. Thus, when capital market participants forecast short-term earnings growth, they are forecasting the amount of cash flows that are expected to have their uncertainties substantially resolved and thus be allowed to be recognized as realized earnings. Using this framework, Penman (2016) states that “accounting can be seen as a system that tracks the resolution of uncertainty over time.”

Consider again the examples of Delta and Angio. Assume that investors form expectations of heterogeneous earnings growth paths where they expect Delta (Angio) to accrue higher rates of earnings growth earlier (later) in the horizon. Drawing from the risk resolution role of earnings, I pose that investors expected to hold Delta’s stock on period $t+1$ quarterly earnings announcements, relative to those expected to hold Angio’s stock, demand higher returns as these announcements expose them to greater long-term earnings growth uncertainty resolution (or more announcement

² Consistent with Penman and Zhang (2020), I do not distinguish between “risk” and “uncertainty” and use both terms to denote potential variation in outcomes from expectations. I also do not distinguish between “risk” and “ambiguity,” where risk (ambiguity) characterizes scenarios where there is uncertainty over outcomes (probabilities; Knight 1921).

risk—i.e., holding a stock while *more* uncertainties about future cash flows are resolved increases the announcement risk of learning adverse news about future growth). Because a greater proportion of Delta’s total earnings over the subsequent horizon is expected to be realized in period $t+1$, investors holding Delta’s stock are expected to do so when greater uncertainties over cash flow collectability and the satisfaction of performance obligations are expected to resolve. The opposite is expected for earnings announcements later in the horizon when investors holding the stock of Anglo will be exposed to more uncertainty resolution from previously expected but not yet recognized earnings growth. Thus, I predict that heterogeneity in expected earnings growth paths conveys *ex-ante* information to investors about the expected timing of the resolution of uncertainty that shapes investors’ expected returns around announcements.

I test my research question on a sample of firm-quarters from 1983 to 2018. I employ an *ex-ante* empirical measure that proxies for investors’ assessments of the expected timing of earnings growth. To construct this measure, I exploit both analysts’ short-term and long-term earnings growth consensus forecasts. I divide the one-year ahead EPS over an *implied* EPS if the firm were to grow linearly at the annualized long-term growth rate to assess the expected earnings growth path of a firm. A ratio greater than one (one-year growth rate > five-year *annualized* growth rate) implies more earnings growth acceleration earlier in the horizon and a ratio less than one (one-year growth rate < five-year *annualized* growth rate) implies more earnings growth acceleration later in the horizon. This measure, denoted *Early_Growth*, controls for the expected *magnitude* of earnings growth and uses variation in the expected *timing* of earnings growth.

I document that firms accrue higher (lower) announcement returns, resolve more (less) long-term earnings growth uncertainty, and experience greater (less) return volatility when more earnings growth acceleration is expected to accrue earlier (later) in the horizon. The predictive

ability of *Early_Growth* for future announcement returns holds using a portfolio approach and a regression specification that controls for other announcement return predictors. Moving from the bottom to the top quintile of *Early_Growth* leads to a size-adjusted return differential of 53 basis points around the earnings announcement date, when controlling for other announcement return predictors. This translates into a 2.1 percent compound annual size-adjusted return differential across announcers. Comparing this spread to the estimated average annual risk premium of 1 to 6 percent (Botosan and Plumlee, 2005) suggests the effect is economically significant. Moreover, using a *within-firm* research design strategy, I continue to document that the expected timing of earnings growth drives *within-firm* variation in expected returns. Overall, my results suggest that the expected time-varying realization of earnings growth is associated with the magnitude of investors' expected returns around earnings announcements.

I perform several additional tests to support the interpretation of my results. First, I show that *Early_Growth* predicts future announcement returns but does not predict future *positive* earnings surprises, suggesting my main results are not driven by an error in investors' expectations explanation (i.e., mispricing; Veenman and Verwijmeren 2018, Johnson, Kim, and So 2020). Second, I document that the *Early_Growth* return differential only arises on announcing days, consistent with *Early_Growth* explaining cross-sectional variation in the earnings announcement premium and not another phenomenon (see Figure 4). Third, I document that the *Early_Growth* return differential is higher in sub-samples of firms with greater abnormal idiosyncratic volatility, where the earnings announcement premium is expected to concentrate (Barber, De George, Lehavy, and Trueman 2013). Fourth, I document that my results hold within sub-samples of firms with different levels of expected long-term earnings growth, suggesting that the *Early_Growth* return differential arises from variation in the *timing*, not the level, of expected earnings growth.

Fifth, I document that the *Early_Growth* return differential is lower in sub-samples of firms with better information environments, where the remaining uncertainty to be resolved at the time of the earnings announcements is lower (Beyer, Cohen, Lys, and Walther 2010). Finally, in a set of falsification and robustness tests, I document that my results are not explained by abnormal trading volume around announcements (Frazzini and Lamont 2007), optimism in analysts' long-term growth forecasts (e.g., La Porta 1996), pessimism in analysts' forecasts issued immediately prior to earnings announcements (Veenman and Verwijmeren 2018), optimism in analysts' forecasts issued earlier in the year (e.g., So 2013), or error in investors' long-term growth expectations due to the slow incorporation of information into long-term growth forecasts (Da and Warachka 2011).

A central contribution of this paper is that it links the literature on the risk resolution role of earnings (e.g., Penman and Zhang 2020) to the earnings announcement premium literature (e.g., Savor and Wilson 2016) within a rational framework. Penman and Zhang (2020) provide a theoretical introduction of the earnings recognition principle into asset pricing. Although prior research compares announcers and non-announcers to document an average relation between risk and announcing returns (Barber et al. 2013; Savor and Wilson 2016), I use accounting theory to connect variation in the amount of *earnings* expected to be recognized to the *magnitude* of investors' expected returns around announcements. Financial statement and security valuation research often assumes expected earnings growth to be independent of the discount rate; my results, on the other hand, support a connection (Penman 2016).

A related literature examines the relation between cash flow duration and the value premium (i.e., the book-to-market return differential; Dechow, Sloan, and Soliman 2004; Weber 2018; Penman and Reggiani 2013). Although this literature mainly studies and employs empirical proxies that capture variation in the *magnitude* of earnings growth across stocks (see Weber (2018)

Table 8), I focus on the *timing* of earnings growth and find that it has strong implications for the cross-section of investors' expected returns around earnings announcements. This is important because the FASB's Conceptual Framework for Financial Reporting states that one of the objectives of financial reporting is to aid investors in their assessments of "the amount, timing, and uncertainty of (the prospects for) future net cash inflows to the entity," highlighting the *timing* as a separate characteristic from the *magnitude* as source of information to investors.

Another body of literature studies the implied cost of capital (e.g., Easton and Monahan 2005). This literature, however, assumes a constant expected return as implied from current stock prices and analysts' forecasts. My construct differs along two dimensions. First, I relax the constant expected return assumption and consider investors' expected returns to be time-varying and to accrue as a function of temporal variation in the resolution of uncertainty (e.g., Gilbert et al. 2018). Second, I consider that investors obtain ex-ante information about the expected resolution of uncertainty from financial information (e.g., expected earnings growth) that is *independent of price*, consistent with the spirit of financial statement analysis and security valuation.

Finally, I contribute to the nascent literature that makes a connection between *earnings* and *risk information* around announcements. Smith and So (2021) show that announcements provide new (*unexpected*) information that revises investors' expectations of risk. I document that ex-ante expectations of the timing of earnings growth is associated with investors' *expected* returns around announcements. My findings thus help to complete the picture for the role of earnings in capital markets around announcements. Earnings not only provide information about cash flows or discount rate *news*, but also ex-ante information about temporal variation in the *expected* resolution of uncertainty across stocks that has strong predictive ability for the cross-section of investors' expected returns around earnings announcements.

II. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Financial Accounting and the Resolution of Uncertainty

Investors face uncertainty in making investment decisions. Thus, investors not only seek information about expected economic benefits, but also information about the uncertainty associated with those economic benefits not being realized (Barker and Penman 2020). Financial accounting, with its conservative accounting principles, potentially serves as a source of ex-ante information about risk (e.g., Penman 2016; Penman and Yehuda 2019; Penman and Zhang 2020). Consider, for example, the conservative nature of assets recognized on the balance sheet. Net assets are only recognized in book value if the future expected benefits associated with such net assets exhibit little uncertainty. Certain economic assets, such as internally generated intangibles, are not recognized on the balance sheet. This conservative practice of recognizing assets leads to the importance of earnings as a source of value-relevant information under conditions of uncertainty (Penman and Yehuda 2019). Specifically, accounting principles, such as earnings recognition, contain an uncertainty and its resolution link. Earnings are not booked until uncertainty has substantially been resolved (Penman and Zhang 2020; Penman and Zhang 2021a). For example, the ‘realization’ principle establishes that revenues are recognized when cash is “realized” or “realizable” and performance obligations have been satisfied, requiring both *uncertainties* over cash flow collectability (FASB's Accounting Standard Update 2014-09) and the satisfaction of performance obligations to be low. If these two criteria are not met, the recognition of revenues is deferred to the future.³

³ Another example is the immediate expensing of R&D investments due to *uncertainties* over investment payoffs (ASC 730-10-05). For a given price, the immediate expensing of investments reduces current earnings and pushes higher expected earnings growth into the future. If the risky payoffs to R&D are realized in the future, earnings derived from R&D will be higher than earnings derived from capitalized investment such as property, because there is no expected depreciation or amortization charges against those future expected revenues.

Information about the resolution of uncertainty influences how investors price assets (Robicke and Myers 1966a). For example, Penman (2016) states that while current price represents the expectation of all future earnings, the *timing* of when those earnings are allocated to future periods is determined by accounting principles that are a reaction to uncertainties over cash flows. If accounting, with its ‘realization’ principle, tracks the resolution of uncertainty over time, future expected returns can be represented as a sequence of expected earnings realizations with the *timing* of those realizations mapping to the *timing* of expected returns. The connection between earnings and risk resolution has led to a growing literature in accounting. Penman and Yehuda (2019) link earnings recognition to “discount rate news.” Penman and Zhang (2021a) find that the book rate of return (profitability) is negatively associated with risk and expected returns. Penman and Reggiani (2013) link the book-to-price return differential to the risk in buying earnings growth.⁴ Smith and So (2021) document that announcements provide new information to investors about firms’ risk profiles. Penman and Zhang (2021b) propose how accounting can be used to build asset pricing factor models. I examine whether heterogeneity in expected earnings growth paths is associated with the magnitude of the earnings announcement risk premium.

The Earnings Announcement Risk Premium

The earnings announcement risk premium is the phenomena that firms earn higher returns when they are announcing earnings relative to other non-announcing periods (e.g., Beaver 1968; Chari, Jagannathan, and Ofer 1988; Ball and Kothari 1991; Cohen et al. 2007; Frazzini and Lamont 2007; Barber et al. 2013; Savor and Wilson 2016; Johnson and So 2018a; Johnson et al. 2020; Chen, Cohen, and Wang 2020; Chapman 2018). Prior studies suggest this premium is economically important and that it compensates investors for the risk borne by holding securities

⁴ Other related papers include Penman and Zhang (2002), Penman and Zhu (2014), and Penman and Zhu (2022).

around information events whether it be from exposure to systematic risks (Savor and Wilson 2016) or idiosyncratic risks (Barber et al. 2013).⁵ In the language of Penman (2016), the earnings announcement premium indicates that expected earnings are “at risk,” so holding securities at these information events requires higher returns. Recent literature, however, also suggests that the earnings announcement premium is *incrementally* shaped by firms managing investors’ expectations (e.g., Johnson et al. 2020; Veenman and Verwijmeren 2018) and investors’ failure to incorporate earnings news information when firms issue ‘scheduling disclosures’ weeks ahead of their announcements (Johnson and So 2018b). These studies find that firms’ incentives to meet-or-beat consensus forecasts and the information content of ‘scheduling disclosures’ lead to predictable earnings surprises and consequently predictable announcement returns. Overall, prior literature documents two potential mechanisms that shape the earnings announcement premium. First, a resolution of uncertainty mechanism that leads to higher returns for announcing firms around these information events (denominator effect). Second, an error in investors’ expectations mechanism that leads to cross-sectional predictability in earnings surprises and consequently cross-sectional predictability in news-related returns (a mispricing related numerator effect). I focus on the former (the denominator effect) and seek to contribute to this literature by examining whether heterogeneity in expected earnings growth paths leads to cross-sectional and within-firm patterns in the earnings announcement risk premium.⁶ Studying variation in expected growth rates within announcing firms relaxes the implicit assumption that all firms exhibit a constant earnings growth path.

⁵ Penman and Zhang (2020) focus on systematic risk as priced risk. As pointed out, this literature debates whether exposure to idiosyncratic risk or systematic risk explain the premium. My objective is not to opine on this discussion but to understand whether expected variation in earnings growth paths influences the timing of the risk premium.

⁶ Related theoretical models include those of Choi and Salamon (1989) and Stapleton and Subrahmanyam (1978) that incorporate risk-averse investors. With risk-averse investors, price changes around information releases result not only from investors’ revisions of the terminal level of future dividends but also from a *positive* price impact from the resolution of uncertainty.

Hypotheses Development

Securities differ in how their uncertainty is expected to be resolved over time (Robicke and Myers 1966a, 1966b; Epstein and Turnbull 1980; Gilbert et al. 2018). In this paper, I focus on one aspect of the uncertainty spectrum that is likely important to investors: uncertainty about whether firms will meet their expected long-term earnings growth rates. I denote this uncertainty as the ‘long-term earnings growth uncertainty’ and its definition, for the purposes of this paper, as the inability to perfectly predict an EPS growth outcome for period $t+k$ (e.g., is the firm likely to grow earnings to an EPS of \$10, 5 periods from now?). Because firms in the economy are dynamic, they are likely to exhibit heterogeneity in their earnings growth paths. Some firms, like the example of Delta, are expected to accrue rapid earnings growth. Other firms, like the example of Angio, are expected to accrue delayed earnings growth. More generally, I illustrate this concept in Figure 1A, where I plot the EPS forecasts of two firms, A and B, that face different earnings growth paths. Figure 1A shows that firm A exhibits steeper (flatter) slopes in earlier (later) periods relative to firm B, where slopes map to annual rates of earnings growth. Although both firms are expected to reach the same level of terminal earnings growth, the expected timing of when earnings growth concentrates is the source of variation I study. Drawing from the risk resolution role of earnings (Penman and Zhang 2020), I argue that heterogeneity in expected earnings growth paths conveys ex-ante information to investors about the expected timing of uncertainty resolution that shapes investors’ expected returns for holding risky securities around earnings announcements. Stocks that are expected to carry earlier earnings growth concentration expose investors to more expected uncertainty resolution, or the risk of learning adverse information about future cash flows.

I develop several predictions with respect to the period $t+1$ (upcoming) earnings announcements. First, I predict that heterogeneity in expected earnings growth paths leads to an

earnings announcement risk premium differential across announcers, where stocks with earlier expected earnings growth concentration accrue higher announcement returns (P1). Notice, however, that this prediction is not exclusive to cross-sectional variation. Temporal variation in the resolution of uncertainty as tracked by expected earnings realizations is also expected to influence *within-firm* announcement returns over time because each firm is expected to have its own earnings growth path, such that earnings announcement t and earnings announcement $t+k$ differ in their earnings growth expectations. Second, I predict that heterogeneity in expected earnings growth paths leads to a differential in long-term earnings growth uncertainty resolution across announcers, where stocks with earlier expected earnings growth concentration experience greater uncertainty resolution (P2). Figure 1B plots in a graph the sources of variation I study.

An important implication of the earnings announcement premium literature is that the pricing effect related to the reduction in uncertainty derives coincidentally with the release of earnings information. Stated differently, for my predictions to be consistent with variation in the earnings announcement premium and not another phenomenon, the return differential is expected to mainly accrue in announcing periods and *not* in other non-announcing periods. This is important because my argument is that stock i will resolve more long-term earnings growth uncertainty than stock j when earnings are announced for period $t+1$ if stock i carries expectations of earlier earnings growth concentration. Outside of the announcing period, however, holding stock i is not expected to accrue higher returns, *ceteris paribus*, than holding stock j because earnings have not realized, and thus little uncertainty resolution is expected. I predict that the expected return differential across announcers with heterogeneous earnings growth paths is concentrated in the earnings announcement periods relative to non-earnings announcement periods (P3).

III. INVESTORS' EXPECTATIONS OF EARNINGS GROWTH PATHS

I empirically proxy for investors' expectations of firms' earnings growth paths with an ex-ante, firm-specific level measure, *Early_Growth*. I construct this proxy using a combination of analysts' consensus one-year ahead and long-term earnings growth forecasts one month after the fiscal Q4 earnings announcement to ensure that analysts' forecasts reflect any updates in expectations. I use EPS amounts to limit the influence from extreme volatility in annual rates of growth percentages when EPS values are close to zero. *Early_Growth* is defined as follows:

$$Early_growth = \frac{E_t[EPSConsensus_{t+1}]}{E_t[ImpliedEPSConsensus_{t+1}]} = \frac{E_t[EPSConsensus_{t+1}]}{ActualEPS_t \times (1 + E_t[LTG_{t+1,t+5}])}$$

I divide the one-year ahead consensus EPS forecast over an *implied* one-year ahead EPS forecast if the firm were to grow linearly. This implied measure is calculated as the product of the actual EPS times the long-term earnings growth forecast, representing what would be the one-year ahead EPS as implied from the annualized long-term growth rate. I illustrate the methodology with the examples of Delta, Angio, and Starbucks. Delta, Angio and Starbucks' 2017 fiscal year reported EPS per I/B/E/S were \$4.93, \$0.73, and \$2.06, respectively. In the month after the earnings announcement date, analysts' one-year ahead EPS consensus forecasts were \$6.49, \$0.67, and \$2.32 and analysts' long-term consensus earnings growth forecasts were 12, 13, and 13 percent for Delta, Angio and Starbucks, respectively. The empirical values for each firm are as follows:

$$\begin{aligned} \text{Delta} &= (\$6.49 / [\$4.93 \times (1 + 0.12)]) = (\$6.49 / \$5.52) = 1.18 \\ \text{Angio} &= (\$0.67 / [\$0.73 \times (1 + 0.13)]) = (\$0.67 / \$0.82) = 0.81 \\ \text{Starbucks} &= (\$2.32 / [\$2.06 \times (1 + 0.13)]) = (\$2.32 / \$2.33) = 1.00 \end{aligned}$$

Delta's (Angio's) value of 1.18 (0.81) suggests that Delta's (Angio's) one-year ahead EPS forecast is 18 percent higher (19 percent lower) than what would be expected if the firm were to have a linear earnings growth path. The resulting values of *Early_Growth* for Delta, Angio, and Starbucks suggest expectations of earlier, later, and linear earnings growth, which is consistent with each firm's disclosed information. Overall, values above (below) one indicate expectations of more

earnings growth acceleration earlier (later) in the horizon. This continuous ratio is my proxy for investors' expectations of firms' expected earnings growth paths.⁷

An alternative measure to capture my construct is to use the expected timing of the earnings yield, where I subtract the implied EPS consensus from the one-year ahead EPS consensus, scaled by price, thus avoiding using small EPS values in the denominator (see Appendix B). I do not use this proxy as my main measure, however, to maintain the spirit of financial statement analysis and security valuation, that is, *independent of price*, investors derive information about the uncertainty of future cash flows from key financial statement information.

IV. RESEARCH DESIGN AND EMPIRICAL RESULTS

Sample Selection

My sample includes quarterly earnings announcements from 1983 to 2018, which is consistent with the sample period of recent announcement return studies (e.g., Veenman and Verwijmeren 2018; Johnson et al. 2020). I obtain analysts' consensus one-year ahead and long-term earnings growth forecasts from the I/B/E/S unadjusted summary files, financial data from Compustat, and stock market data from CRSP. I use the Compustat quarterly files and I/B/E/S to obtain earnings announcement dates.⁸ I restrict my sample to firm-quarter observations with available data to create *Early_Growth*. I restrict *Early_Growth* to be constructed using positive values of actual EPS values and one-year ahead EPS forecasts to ensure that the values of *Early_Growth* are interpretable. I delete firm-quarter observations with missing earnings

⁷ Da and Warachka (2011) use differences in growth forecasts to proxy for the slow incorporation of information into long-term forecasts while I use differences in analysts' one-year ahead and long-term annualized growth forecasts to capture the heterogeneity in expected earnings growth paths construct (Penman 2016). I explore alternative error in investors' expectations explanations in Section V.

⁸ If I/B/E/S and Compustat announcement dates differ, I impute the announcement date to be the earlier one. I adjust announcement dates one trading day forward if the I/B/E/S timestamp indicates that the announcement occurred after market close (Johnson and So 2018a). If I/B/E/S and Compustat dates do not differ and the earnings announcement date is before January 1, 1990, I assign the announcement date to be the previous trading date as there is a known a lag in reporting before 1990 (Dellavigna and Pollet 2009).

announcement dates and observations for which Compustat and I/B/E/S earnings announcement dates differ by more than five days. I further delete observations with missing 2-digit SIC codes, observations with earnings announcements occurring more than 100 days after the current fiscal period-end date or after the following quarter's fiscal period end date (deHaan, Shevlin, and Thornock 2015) and observations with stock price less than \$5 to ensure results are not driven by small or illiquid stocks (Jegadeesh and Titman 1993). I restrict my sample to firms with share codes 10 and 11 per CRSP (i.e., U.S. common stocks) and firms with available return data around the earnings announcement dates. Finally, I eliminate observations from 2-digit SIC code industries with less than five firms in a calendar year-quarter. The unit of observation is at the firm-quarter level with a total of 230,728 observations. See Table 1 for sample selection procedures. I windorize all variables, except return-based measures, at the extreme 1 percent by year to mitigate the influence of outliers.

Descriptive Statistics

To calculate *Early_Growth*, I use analysts' one-year ahead and long-term earnings consensus forecasts available one month after the annual (i.e., Q4) earnings announcement. Using annual horizons of EPS forecasts avoids mischaracterizing seasonal patterns in the time-series of quarterly earnings or in the underlying economics of the business as expected earnings growth (Bernard and Thomas 1990; Salamon and Stober 1994).⁹ For example, the value of *Early_Growth* calculated after the fiscal Q4-1990 earnings announcement is mapped to the subsequent four 1991 fiscal quarters (Q1, Q2, Q3 and Q4-1991). I rebalance annually the values of *Early_Growth* for

⁹ Annual horizons are less likely to be influenced by the 'recency' bias suggested by Chang, Hartzmark, Solomon, and Soltes (2017). The 'recency' bias, where investors remember recent information more than older information, is more applicable for quarterly horizons where earnings have been shown to exhibit seasonal patterns.

each firm after its fiscal Q4 earnings announcement to allow for investors' revisions in expectations of earnings growth paths.

In Table 2 Panel A, I present descriptive statistics of *Early_Growth* by quintile. Because a long-term forecast of 20-25 percent might be typical in the technology sector but very high for another sector (Da and Warachka 2011), and average growth rates may also vary across time, I sort *Early_Growth* into quintiles by industry and calendar year-quarter.¹⁰ I define industries using 2-digit SIC industry classifications. The middle quintile presents both mean and median values close to one, as is expected from an average firm that has a linear growth. The lowest quintile presents a mean (median) value of 0.80 (0.85) and the highest quintile presents a mean (median) value of 1.84 (1.35). Variation in *Early_Growth* values across quintiles suggest significant variation in investors' expectations of earnings growth paths. To reduce concerns regarding differences in standard deviations across quintiles (e.g., more variation in the right tail of *Early_Growth*), I use *Early_Growth* quintile-ranked values in subsequent empirical tests and regression specifications.

I further explore the characteristics of *Early_Growth* with respect to variation in expected one-year ahead and long-term earnings growth rates. In Table 2 Panel B Columns (1) and (2), I present the median values of the one-year ahead (*ST_Growth*) and the long-term (*LT_Growth*) expected earnings growth rates by *Early_Growth* quintiles. Consistent with expectations, Column (2) shows that higher values of *Early_Growth* relate to higher values of *ST_Growth*. Column (3) shows that this pattern does not extend to *LT_Growth*, by construction, as *Early_Growth* is expected to control for variation in the expected level of long-term growth. To highlight the desirability of *Early_Growth* in my empirical specifications, Columns (3) to (5) sort firms by

¹⁰ This design also reduces concerns that differences in firms' information environments or business models across industries drive the results. As I discuss subsequently, results are not sensitive to this choice.

LT_Growth quintiles. Although *ST_Growth* varies with *LT_Growth* quintiles, *Early_Growth* maintains a median value of 1.0, as expected, because *Early_Growth* is expected to capture variation in the timing, not the level, of earnings growth.

Table 2 Panel C presents the main findings documented in the earnings announcement premium literature to assess the reasonableness of my sample. I document a market-adjusted return of 22 basis points and a within-firm adjusted return of 30 basis points in the [-1,+1] trading window centered at the earnings announcement date that is similar to the 18 and 29 basis points documented by Johnson and So (2018a) for the same return measurements. In this paper, however, I use size-adjusted returns as my primary measure following Skinner and Sloan (2002) to ensure return patterns are not driven by cross-sectional announcement return differences between small and big firms. Size-adjusted returns are defined as the buy-and-hold raw returns less the size decile return from CRSP (*BHAR*). Returns are adjusted for delistings following Beaver, McNichols, and Price (2007).¹¹ Using both actual and expected earnings announcement dates (Cohen et al. 2007), I show that size-adjusted returns in short, weekly, and monthly window intervals around announcements are unconditionally positive and statistically significant, consistent with prior literature.¹² Table 2 Panel D presents descriptive statistics for my sample. Table 2 Panel E presents a correlation table that includes *Early_Growth* and selected firm characteristics. *Early_Growth* has a positive correlation with book-to-market and firm beta, a measure of systematic risk, and a negative correlation with unexpected earnings, size, institutional ownership, and firm age.

Research Design and Primary Results

¹¹ The authors kindly provide the code at <https://sites.google.com/site/richardaprice3/research>.

¹² Prior research uses tight windows centered at the announcement date (Cohen et al. 2007) and weekly horizons (Savor and Wilson 2016) when focusing on the news content of earnings announcements. Expected announcement dates are set as the same day earnings were announced in the same quarter in the prior fiscal year.

I begin by examining whether firms' heterogenous earnings growth paths induce cross-sectional variation in the earnings announcement premium (P1) using a portfolio approach. Table 3 presents the mean raw returns, size-adjusted, and market-adjusted returns for each of the quintile portfolios of *Early_Growth* for short and weekly return intervals. I present weekly return intervals because Johnson and So (2018a) document that financial intermediaries reduce their exposure to announcement risk by providing liquidity asymmetrically for sell versus buy orders. This asymmetry creates a predictable upward bias in prices before earnings announcements that reverses upon the realization of earnings, potentially confounding measures of earnings news and the risk premium. Hence, I ensure all findings are robust to expanding the return measurement to the [-6,+2] trading window.¹³ Descriptively, the returns around earnings announcements are increasing in *Early_Growth* quintiles. The return differential between the bottom and top quintiles varies between 17 to 27 basis points unconditionally across different return specifications. These results provide preliminary evidence supporting P1 in that heterogeneity in expected earnings growth paths is associated with the magnitude of the earnings announcement premium.

I next examine my prediction using a regression analysis. I estimate the following OLS regression where i indexes firms, t indexes fiscal years and q indexes fiscal quarters.

$$BHAR_{itq} = \alpha + \beta_1 Early_growth_{it-1} + \beta_2 UE_{itq} + \sum \beta_k Controls_{itq} + \sum \beta_k Date\ FE + \varepsilon_{itq} \quad (1)$$

$BHAR$ is defined as above and is measured using the [-2,+2] trading window centered at the earnings announcement date. *Early_Growth* is my proxy for the expected timing of earnings growth. UE is unexpected earnings calculated as actual EPS minus the I/B/E/S summary consensus prior to the day the return interval is formed, scaled by price at the end of the fiscal quarter. UE

¹³ Expanding the window to the [-6,+2] return interval also addresses concerns that bid-ask spreads bounce, liquidity shifts, and other microstructure issues explain the results.

controls for potential mispricing explanations as mispricing studies pose that announcement return predictability arises because of the ability to predict earnings surprises (Veenman and Verwijmeren 2018). I also include a vector of controls that prior literature finds predict cross-sectional variation in the earnings announcement premium, explain variation in *BHAR*, or are likely correlated with both *BHAR* and *Early_Growth*. I control for book-to-market and size (Fama and French 1993), profitability (Ball, Gerakos, Linnainmaa, and Nikolaev 2015), earnings persistence (Miller and Rock 1985; Kormendi and Lipe 1987), earnings volatility (Dichev and Tang 2009), institutional ownership (Sias, Starks, and Titman 2006), beta, and the reporting lag. The reporting lag is important as it controls for information about the prospects of the entire economy (market-level news) as investors are expected to learn more about the economy from firms announcing earlier in a calendar quarter (Savor and Wilson 2016). I also control for abnormal idiosyncratic volatility (Barber et al. 2013), firm age, momentum (Jegadeesh and Titman 1993), prior 12-month returns (Aboody, Lehavy, Trueman 2010) and analyst forecast dispersion (Diether, Malloy, and Scherbina 2002). I add indicator variables for firms with negative income before extraordinary items (loss firms) and fourth fiscal quarters (Salamon and Stober 1994). Although my main variable of interest, *Early_Growth*, is constructed to capture the expected timing of earnings growth irrespective of the expected level of earnings growth, I include the level of analysts' long-term growth forecasts prior to the start of the return interval to control for cross-sectional differences in the expected levels of investment growth (Penman and Zhang 2020). Finally, I control for return volatility in the non-earnings announcement period (Johnson and So 2018a).

Consistent with prior research in accounting, I employ an earnings announcement date fixed effects structure to rule out unobserved characteristics of each earnings announcement date

(deHaan, Madsen, and Piotroski 2017). This structure controls for variation in the risk premia across earnings announcement days, calendar effects such as day of the week firms choose to announce, investor inattention (e.g., busy earnings days), and movements in policy-related economic uncertainty (Baker, Bloom, and Davis 2016). Each calendar year-quarter, all independent variables are sorted into quintiles (0 to 4) within industry membership using 2-digit SIC industry classifications. Each quintile is then divided by four (4) so that the coefficient can be interpreted as the average return differential from moving from the bottom to the top quintile. Standard errors are clustered by firm and earnings announcement date. The coefficient of interest is β_1 . For variable definitions, refer to Appendix C.

I present the results in Table 4 Panel A. Consistent with P1, *Early_Growth* is positively associated with size-adjusted announcement returns (Column (1), $\beta_1=0.0050$, t-stat 8.79, p-value<0.01) when controlling for unexpected earnings. I include the vector of controls in Equation (1) in Column (2) and expand the return interval in Column (3) to account for the inventory risk findings in Johnson and So (2018a). Throughout all these specifications, the coefficient on *Early_Growth* remains positive and statistically significant. Interpreting the coefficient of *Early_Growth* in Column (2) suggests that moving from quintile 0 (low *Early_Growth*) to quintile 4 (high *Early_Growth*) is associated with an incremental return differential of 53 basis points in announcement returns. This translates into a 2.1 percent ($0.0053 \times 4 \text{ quarters} \times 100$) compound annual size-adjusted return differential between announcers. This spread, compared to the estimated average annual risk premium of 1 to 6 percent (Botosan and Plumlee 2005), suggests a significant economic cross-sectional return differential.¹⁴ To ensure that the documented return

¹⁴ In the untabulated analyses, I find that the inferences are robust to: 1) not sorting *Early_Growth* within industry or replacing 2-digit SIC codes with the Fama-French 48 Industry Classification, 2) replacing *UE* with an indicator for non-negative earnings surprises, 3) including accruals as a return predictor in the post-1987 sample, 4) replacing

predictability is not driven by the timing of when news are announced relative to the expected announcement date, I follow prior research (Cohen et al. 2007) and present the results from using expected earnings announcement dates in Column (4).¹⁵ I use a [-5,+5] trading window around the expected earnings announcement date to accommodate measurement error in the expected earnings announcement date model (Savor and Wilson 2016). The coefficient on *Early_Growth* remains positive and statistically significant.

Finally, in Columns (5) and (6), I perform falsification tests that use both an indicator variable for non-negative earnings surprises and a continuous variable for earnings surprises as the dependent variable, respectively. A mispricing explanation (as opposed to the compensation for risk explanation) would predict a *positive* cross-sectional association between *Early_Growth* and non-negative earnings surprises that mimics the positive cross-sectional association with returns. Inconsistent with mispricing, *Early_Growth* is negatively associated with the sign of earnings surprises, with weak economic significance (with only a 2 percent differential in the average rate at which firms meet-or-beat earnings surprises). *Early_Growth* is also negatively associated with the continuous variable of unexpected earnings suggesting mistaken investor expectations do not explain the *Early_Growth* return pattern.

Early_Growth with *ST_Growth* as the main independent variable, controlling for *LT_Growth*, 5) measuring *BHAR* as raw returns less the average return for the same firm in the non-earnings announcing period, 6) using an expected announcement month window and using characteristic-adjusted returns (Daniel, Grinblatt, Titman, and Wermers 1997). In Appendix B, I show the results are robust to using the expected timing of the earnings yield as an alternative proxy to *Early_Growth*.

¹⁵ Cohen et al. (2007) find that firms that announce earnings later-than-expected tend to have bad news. Thus, for these announcers, uncertainty could partially be resolved when they do not announce on the expected date. The expected announcement date specification controls for firm characteristics constructed at or prior to the fiscal quarter end, excludes unexpected earnings and abnormal idiosyncratic volatility, and uses an expected reporting lag variable.

Next, I examine whether within-firm variation in the expected timing of earnings growth induces within-firm variation in announcement returns.¹⁶ In Table 4 Panel B, I re-estimate Equation (1) with firm-fixed effects. Consistent with my prediction, within-firm variation in *Early_Growth* is positively associated with within-firm variation in announcement returns. The coefficient on *Early_Growth* is positive and statistically significant across all specifications. Using the [-2,+2] window and controlling for other return predictors in Column (3) suggests a 1.6 percent ($0.0039 \times 4 \text{ quarters} \times 100$) compound annual *within-firm* return differential. Overall, these results point to a link between firms' earnings growth paths and within-firm announcement returns.

Although I use OLS in my main specification, I also examine return predictability using quarterly Fama and Macbeth (1973) cross-sectional regressions with no changes to the inferences (untabulated). Nonetheless, to highlight the robustness of the findings over time, I plot the quarterly Fama and Macbeth (1973) cross-sectional regression coefficients on *Early_Growth* in Figure 2. Plotting the predictive ability of *Early_Growth* over time is important given that I test for the risk resolution role of earnings. Returns related to risk are not expected to be arbitrated away as they do not reflect mispricing (e.g., Richardson, Tuna, and Wysocki 2010) nor should they attenuate due to a decrease in information processing costs over time (Blankespoor, deHaan, and Marinovic 2020). Figure 2 illustrates that the *Early_Growth* return differential is present across different periods with non-positive return spreads mainly concentrated around the dot-com Bubble and the 2008-2009 financial crisis. Out of the 139 quarters, 108 (78 percent) have a positive return spread consistent with the expected timing of earnings growth shaping the earnings announcement risk premium.

¹⁶ *Early_Growth* has significant within-firm variation. The standard deviation of the residuals, from regressing *Early_Growth* on indicator variables for each firm or each firm and earnings announcement date, is 0.649 and 0.632 (Table 2 Panel D), representing 89.1 and 86.8 percent of the sample standard deviation, respectively (deHaan 2020).

Resolution of Long-term Earnings Growth Uncertainty Tests

Although I have documented that heterogeneity in firms' earnings growth paths is associated with the earnings announcement premium, the proposed mechanism connecting this relation is the expected amount of uncertainty resolution induced by expected earnings growth realizations (P2). To test this prediction, I use the following OLS regression:

$$\begin{aligned} \text{Change_Disp/Ret.Vol.}_{itq} \\ = \alpha + \beta_1 \text{Early_growth}_{it-} + \beta_2 \text{UE}_{itq} + \sum \beta_k \text{Controls}_{itq} + \sum \beta_k \text{Date FE} \\ + \varepsilon_{itq} \end{aligned} \quad (2)$$

I use two proxies for uncertainty resolution and/or announcement risk. First, I use the change in dispersion in analysts' long-term growth forecasts from the month before to the month after the earnings announcement date as a proxy for the resolution of long-term earnings growth uncertainty.¹⁷ This proxy follows Rees and Thomas (2010) and Yeung (2009), who use the dispersion in analysts' short-term earnings forecasts to proxy for changes in earnings uncertainty, although I focus on long-term earnings forecasts to better match my construct.¹⁸ If earnings announcements resolve more uncertainty over long-term expected earnings growth outcomes, then this is expected to be reflected as a reduction in the dispersion of analysts' long-term growth forecasts after those announcements. Second, I use stock return volatility, measured as the standard deviation of returns around the earnings period to proxy for conditional risk (Gilbert et al. 2018). I add a vector of control variables that include several firm characteristics. For the specification that uses the changes in dispersion as the dependent variable, I add the revision in the mean level

¹⁷ I use the standard deviation from the I/B/E/S unadjusted summary file to match the construction of *Early_Growth*. Because not all standard deviation values are populated in the I/B/E/S file, I lose some observations when constructing this variable. All quintile ranks are sorted within this sub-sample.

¹⁸ I do not use changes in option implied volatilities around announcements because most exchange-traded options have short-term durations (Rogers, Skinner, and Van Buskirk 2009). Long-term growth forecasts, however, have an expected horizon of three to five years, which directly maps to my long-term earnings growth uncertainty construct.

of analysts' long-term earnings growth forecasts, unexpected earnings, and returns around the earnings announcement date drawing from the specification in Rees and Thomas (2010).

I present the results of Equation (2) in Table 5. Consistent with my prediction, *Early_Growth* is negatively associated with the change in dispersion such that firms with earlier earnings growth concentration are associated with more resolution of long-term earnings growth uncertainty around announcements. Moving from the bottom to the top quintile of *Early_Growth* represents an incremental decrease in the change in dispersion of 0.0017 when controlling for other firm characteristics (Column (2), t-stat 2.60, p-value <0.01). Comparing this spread to the unconditional change in dispersion in analysts' long-term growth forecasts (-0.00005, untabulated) suggests a significant economic reduction. Moreover, I find return volatility is increasing in *Early_Growth* such that holding stocks around earnings announcements with earlier expected earnings growth concentration exposes investors to more return volatility (Column (4), $\beta_1=0.0010$, t-stat 4.70, p-value <0.01). Columns (5) and (6) add firm fixed effects with no changes to the inferences. Overall, I interpret these results to suggest that holding *Early_Growth* stocks exposes investors to more uncertainty resolution and more announcement risk.

Earnings Announcement Periods vs. Non-earnings Announcement Periods

Although the results, thus far, indicate a link between variation in earnings growth paths and earnings announcement returns, I expect the return differential predicted by *Early_Growth* to mainly arise when firms are announcing earnings but not in other periods (P3). I re-employ Equation (1) for the various return intervals depicted in Figure 3.

Table 6 Columns (1) and (2) present the results for the non-earnings announcement period interval, defined to begin immediately after I/B/E/S issues revised consensus forecasts in the month after the *prior* fiscal quarter earnings announcement date and end at the fiscal quarter end

date [Consensus, FQEND].¹⁹ Columns (3) and (4) present the results for the earnings announcement period interval, defined to begin at the end of the fiscal quarter period end and end two trading days after the earnings announcement date [FQEND, 2]. I use a long earnings announcement interval to allow for earnings pre-announcements of growth firms and information leakages (Skinner and Sloan 2002). The *Early_Growth* return differential only arises in the earnings announcement period and not in the non-earnings announcement period.²⁰ Moreover, irrespective of the statistical significance, the magnitude of the coefficients is smaller in the non-earnings announcement period. I further decompose the earnings announcement period into the intervals prior to the information release [FQEND, -6] and around the information release [-6,+2] in Columns (5) to (8). There is an insignificant return differential prior to the information release.²¹

To illustrate my findings graphically, Figure 4A plots the coefficient of *Early_Growth* from estimating Equation (1) for each of the 13 trading days centered at the earnings announcement date. The filled (patterned) bars present statistically significant coefficients at the 1 percent (5 or 10 percent) level. The return differential mainly accrues in the [-2,+2] interval with the most significant differential (27 basis points) accruing at the announcement day. I repeat this exercise using within-firm variation in Figure 4B with similar inferences. Overall, these results provide support to the general notion in asset pricing models that predict the risk premia should accrue *at the time information is released* and thus when uncertainty over earnings is resolved.

V. CROSS-SECTIONAL AND ROBUSTNESS TESTS

¹⁹ The start of the interval provides consistency across quarters as portfolios of *Early_Growth* are formed annually one month after the Q4 earnings announcement. Results are unchanged if the interval starts three days after the previous fiscal quarter's earnings announcement date (not tabulated).

²⁰ I exclude the standard deviation of returns control in the non-earnings announcement period specification. I find, however, that including it or using the lag from the prior fiscal quarter does not affect the inferences (not tabulated).

²¹ In untabulated analysis, I find that *Early_Growth* does not predict a change in analysts' forecast dispersion around the non-earnings announcement period. The change in dispersion in the non-earnings announcement period is defined from three months *prior* to the earnings announcement month to one month *prior* to the earnings announcement month.

Next, I perform several additional tests to support the interpretation of my results.

Abnormal Idiosyncratic Volatility

The accounting and finance literature extensively debate whether systematic or idiosyncratic risks are priced by investors. Although Penman and Zhang (2020) model priced risk as systematic risk, Penman (2016) state that “it remains an open question as to whether idiosyncratic risk is also priced”. My objective is not to opine on this debate, but rather on exploiting cross-sectional variation based on the findings documented in prior literature. One influential paper is that of Barber et al. (2013) that documents that abnormal idiosyncratic volatility is associated with the magnitude of the earnings announcement risk premium. Although I have controlled for abnormal idiosyncratic volatility in my main specifications such that my results are incremental to the results in Barber et al. (2013), I exploit this relation to examine whether my results concentrate in sub-samples of firms *where more risk premium is expected*. I follow Barber et al. (2013) and divide my sample into terciles based on the values of abnormal idiosyncratic volatility and repeat Equation (1) by sub-samples. In Table 7 Panel A, the sub-sample with the largest abnormal idiosyncratic volatility, where more risk premium is expected, presents the largest *Early_Growth* return differential. The difference between the high and low subsamples is statistically and economically significant. These findings further support my argument that *Early_Growth* induces variation in the earnings announcement risk premium.

Level of Long-term Growth

My construct is heterogeneity in expected earnings growth paths. My construct does not exclusively depend on differences in life-cycle stages where firms are typically bucketed into growth and non-growth stages. As all firms recognize earnings, its risk resolution role is expected to apply to all firms irrespective of whether they are in a high or low earnings growth stage. I

consider, however, whether the magnitude of the *Early_Growth* return differential varies cross-sectionally with the expected level of long-term earnings growth. On one hand, it is possible that the return differential induced by *Early_Growth* amplifies with the level of earnings growth as higher growth might indicate greater expected variation in growth outcomes and thus greater uncertainty. On the other hand, the discount investors apply to uncertain cash flows may not just be about variation in absolute terms, but also variation relative to its mean. For example, Penman and Zhang (2020) refer to this pricing effect as “for the same amount of variation in cash flow, the lower the mean, the higher the probability that realized cash flows will be low or close to zero.” I repeat my main tests by sub-samples based on the level of long-term earnings growth. In Table 7 Panel B, the return differential across all terciles is similar to the main effect presented in Table 4. The difference between the low and high growth sub-samples is insignificant. These results suggest that the *Early_Growth* return differential captures variation in firms’ expected earnings growth paths, irrespective of differences in the level of earnings growth.²²

Firms’ Information Environments

Firms differ in their information environments (Beyer et al. 2010). Firms with better information environments could have less uncertainty to be resolved at the time of the earnings announcement. For example, analysts’ forecasts released prior to firms’ earnings releases contain information that is incorporated into investors’ expectations of earnings. I expect the return differential induced by *Early_Growth* to be lower among sub-samples of firms with better information environments. To proxy for firms’ information environments, I use the level of analyst coverage in the month prior to the earnings announcement. In Table 7 Panel C, the sub-sample with the highest (lowest) level of analyst coverage presents the smallest (largest) *Early_Growth*

²² In untabulated tests, I also find that the results do not cross-sectionally vary when firms are bucketed into ‘Growth’ and ‘Mature’ life-cycle stages as defined using information in the cash flow statement following Dickinson (2011).

return differential. The difference between the high and low subsamples is statistically and economically significant. These results suggest that while the *Early_Growth* return differential is present across all sub-samples, the effect concentrates among firms with poorer information environments, where more uncertainty is expected to be resolved at the time of the announcement.

Robustness Tests and Alternative Explanations

I recognize that *Early_Growth* is potentially endogenous and my inferences may be subject to the threats of omitted correlated variable bias. One potential explanation is that *Early_Growth* firms may have more attention-grabbing announcements or more attention-constrained individual investors inducing more buying pressure at the time of the announcement (Frazzini and Lamont 2007). This buying pressure may lead to predictable announcement returns. To address this concern, I add abnormal trading volume as an additional control variable to Equation (1). The negative coefficient on abnormal trading volume (Table 8 Column (1)) is consistent with prior literature (Barber et al. 2013; Levi and Zhang 2015) while the *Early_Growth* coefficient remains economically significant suggesting that abnormal trading volume do not explain my results.

Another potential explanation is that of error in investors' expectations or analysts' biases that can lead to predictable announcement returns when mispricing corrects. I control for unexpected earnings in my specifications because mispricing patterns are expected to arise from the cash-flow news portion of realized returns. Nevertheless, I perform additional robustness procedures. First, prior research associates mispricing to the level of long-term growth forecasts (e.g., La Porta 1996; Dechow and Sloan 1997; Weber 2018). Table 2 Panel B, however, shows that *Early_Growth* does not vary with the expected level of long-term growth. Moreover, in Table 7 Panel B, I find that my results hold for both high and low expected earnings growth sub-samples reducing concerns that results are fully explained by optimism or mispricing in high growth stocks.

Second, Veenman and Verwijmeren (2018) find that investors do not unravel predictable pessimism in analysts' forecasts immediately before announcements and this leads to predictable announcement returns. In Table 8 Columns (1) and (2), I re-estimate Equation (1) including *Pess_Combined*, the empirical measure of the authors.²³ I exclude the earnings surprise variable because ex-ante measures of mispricing naturally relate to error in earnings expectations and my goal is to examine whether *Early_Growth* is incremental and not explained by mispricing return patterns. The coefficient on *Early_Growth* remains positive and statistically significant.²⁴

Third, other studies examine the relation between optimism in forecasts issued early in the year and future returns (e.g., Frankel and Lee 1998; Hribar and McNinnis 2012; So 2013). Optimism in these early forecasts, however, is not expected to directly relate to future announcement returns because analysts revise their initial forecasts outside of earnings announcement windows (Matsumoto, 2002). For example, So (2013) finds that some mispricing from optimistic forecasts corrects around the first quarterly earnings announcement after portfolio formation and most of the mispricing corrects in non-earnings announcement periods. I re-estimate Equation (1) excluding the first quarterly earnings announcement after *Early_Growth* quintiles are formed. Table 8 Column (4) shows that the results are robust to this specification.

Fourth, Da and Warachka (2011) document that differences in short-term and long-term earnings growth forecasts could be due to the slow incorporation of information into long-term growth forecasts. The authors document that investor inattention toward long-term growth forecasts leads to error in investors' expectations that correct over the *subsequent six months* after portfolio formation when analysts revise their long-term growth forecasts. In Table 8 Column (5),

²³ I thank the authors for making code available at <https://sites.google.com/site/dveenman/data?authuser=0>.

²⁴ Johnson et al. (2020) also develop an expectations management score (EMI), which they make available to researchers in their Online Appendix. I merge EMI with my sample providing a reduced coverage of 143,612 observations. I find no changes to my inferences (not tabulated).

I estimate Equation (1) excluding the first and second quarterly earnings announcement after *Early_Growth* quintiles are formed. The results are robust to this specification suggesting that the slow incorporation of information over the subsequent six months does not explain my earnings announcement premium results.

Fifth, the literature on the post-earnings announcement drift (PEAD) finds that investors underweight the earnings signal and this leads to return predictability around future quarterly earnings announcements. A potential concern is that *Early_Growth* is correlated with unobservable factors that also drive PEAD. Although Bernard and Thomas (1990), Abarbanell and Bernard (1992), and Livnat and Mendenhall (2006) present different return patterns, they generally find that earnings surprises predict positive (negative or insignificant) short window returns in the first three quarters (in the fourth quarter) after portfolio formation. I repeat Equation (1) separately for each future fiscal quarter and present the results in Table 8 Columns (6) to (9). Different from PEAD, I find that *Early_Growth* predicts *positive* announcement returns in all future quarters, a return pattern that is consistent with a resolution of uncertainty mechanism.

Finally, a researcher may argue that higher realizations of short-term growth may upwardly revise investors' expectations of long-term growth at the time of the announcement potentially explaining the *Early_Growth* return pattern. To address this concern, I re-estimate Equation (1) including an *ex-post* variable that captures analysts' revisions in long-term earnings growth forecasts from one month before to one month after the earnings announcement. Table 8 Column (10) shows that the results are robust to this specification. Overall, I conclude that my main results are not explained by abnormal trading volume or different types of error in investors' expectations patterns as documented in prior literature.

VI. CONCLUSION

Earnings recognition contains information about risk and its resolution. Earnings are not recognized until uncertainty over cash flows has substantially resolved (Penman and Zhang 2020). In this paper, I document that heterogeneity in firms' expected earnings growth paths is both a *cross-sectional* and *within-firm* driver of the earnings announcement risk premium. Specifically, firms with earlier expected earnings growth acceleration accrue higher returns, resolve more long-term earnings growth uncertainty, and are riskier to hold around earnings announcements. This expected return pattern arises *only* when firms announce earnings and not in other periods. Cross-sectional tests show that the results concentrate in sub-samples of firms where more earnings announcement premium is expected and in sub-samples of firms with poorer information environments, where more uncertainty is expected to be resolved at the time of the earnings announcement. Results do not vary across sub-samples of firms with different expected *levels* of earnings growth. I conclude that the expected *timing* of earnings growth conveys ex-ante information to investors about variation in the expected resolution of uncertainty that has strong predictive ability for the cross-section of investors' expected returns around earnings announcements.

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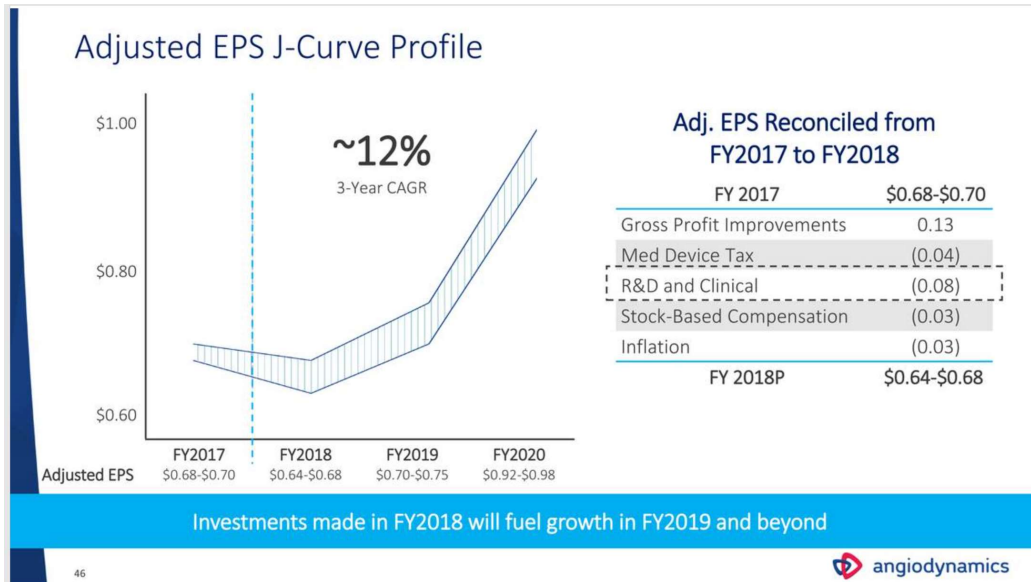
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Appendix A: Example of Earnings Growth Paths Communicated to Investors

This Appendix presents an excerpt (i.e., slide #46) from the power point presentation deck discussed at the 2017 Investor Day meeting of Angiodynamics, Inc.



Appendix B: Alternative Measure of *Early_Growth*

This Appendix presents an alternative measure of *Early_Growth*, the expected timing of the forward earnings yield that subtracts the implied EPS figure from the one-year ahead EPS forecast, scaled by price. The table below presents the descriptive statistics for this measure and the portfolio analysis tests similar to Table 3, noting similar inferences. In untabulated analyses, I also find that the inferences are unchanged if I employ Equation (1).

$$Early_Growth = \frac{E_t[EPS_{Consensus_{t+1}}] - [ActualEPS_t \times (1 + E_t[LTG_{t+1,t+5}])]}{StockPrice_t}$$

	Descriptive Statistics				Size-adjusted returns			
		(1)	(2)	(3)		(4)	(5)	(6)
<i>Early_Growth</i>	N	Mean	Median	Stdev	N	[-1,+1]	[-2,+2]	[-6,+2]
0	42,532	-0.019	-0.011	0.023	42,496	0.0016	0.0017	0.0025
1	49,004	-0.004	-0.002	0.009	48,966	0.0015	0.0019	0.0024
2	49,607	0.000	0.000	0.006	49,574	0.0029	0.0038	0.0043
3	48,066	0.006	0.004	0.007	48,058	0.0030	0.0038	0.0044
4	41,355	0.023	0.017	0.020	41,332	0.0034	0.0039	0.0040
Diff (4-0)		0.001	0.000	0.019		0.0018***	0.0022***	0.0015**

Appendix C: Variable Definitions

This table present the definitions of the variables used in regression analyses.

Variable	Description	Source
<i>Abn_Idio_Vol</i>	Abnormal idiosyncratic volatility is computed as the standard deviation of the residuals (generated from yearly market models with three lags) over the [-1,+1] window surrounding the announcement, divided by the standard deviation of the residuals over the [-51,-11] trading period, minus one.	CRSP
<i>AbVolume</i>	Abnormal trading volume defined as the average daily shares traded divided by the total outstanding shares during the [-2,+2] earnings announcement window, minus the average over the [-51,-11] trading period.	CRSP
<i>Accruals</i>	The difference between income before extraordinary items and cash flows from operations scaled by total assets [IBQ-OANCFY].	Compustat
<i>Beta</i>	Stock market beta, calculated over days [-250, -5] relative to the earnings announcement when using the [-2,+2] window. Because I use various return intervals including [-6,+2] in the main tests in Table 4 and [FQEND, 2], [Consensus, FQEND], [FQEND, -6], and [-6,+2] in Table 6, I adjust the stock market beta measurement depending on the interval. I denote stock market beta measurement to be 250 days prior to the fiscal quarter end date or 250 days prior to the prior quarter's earnings announcement date, depending on the specification. For each return interval, I ensure stock market beta uses return data prior to the start of each buy-and-hold measurement window.	CRSP
<i>BHAR- Market-adjusted</i>	Buy-and-hold returns constructed as the raw return less the value-weighted market portfolio return per CRSP. This variable is constructed for various return intervals and is adjusted for delistings.	CRSP
<i>BHAR- Size-adjusted</i>	Buy-and-hold raw returns less the CRSP year-end capitalization decile return. This variable is constructed for various return intervals and is adjusted for delistings.	CRSP
<i>Book-to-market</i>	Book value of common equity divided by market value of equity as of the end of the fiscal quarter $[(CEQQ + TXDBQ)/(PRCCQ \times CSHOQ)]$.	Compustat
<i>Change_Disp</i>	Change in the standard deviation of analysts' long-term earnings growth consensus forecast from before to after the earnings announcement date. I subtract the standard deviation of the consensus forecast in the month prior to the earnings announcement date from the standard deviation of the consensus forecast in the month after the earnings announcement date, scaled by price at the end of the fiscal quarter.	I/B/E/S
<i>Dispersion</i>	The standard deviation of the one-year ahead consensus forecast from the I/B/E/S unadjusted summary file measured in the month prior to the earnings announcement date, scaled by the mean absolute value of the level of the one-year ahead consensus forecast. If the consensus forecast is not available in the month prior to the earnings announcement date, then I use the previous month up to 3 months prior to the earnings announcement date.	I/B/E/S
<i>Early_Growth</i>	This variable is constructed using analysts' one-year ahead and long-term earnings growth forecasts one month after the prior year's fiscal Q4 earnings announcement date. I divide the one-year ahead EPS forecast over an implied one-year ahead forecast. This implied measure is calculated as the product of the actual EPS times the long-term earnings growth forecast, representing what would be the one-year ahead EPS as implied from the annualized long-term growth rate. Refer to Section III for additional details.	I/B/E/S
<i>Earnings_Volatility</i>	Earnings volatility, calculated as the standard deviation of the seasonal difference in EPS, calculated over trailing four years [EPSPIQ].	Compustat
<i>Firm_Age</i>	Number of years since the firm first had price data in CRSP.	CRSP
<i>IO</i>	Institutional ownership defined as the percentage of shares held by institutions, as sourced from the Thomson 13f database.	Thomson Reuters 13f

<i>Loss</i>	Indicator variable for income before extraordinary item is less than zero [IBQ].	Compustat
<i>LTG</i>	The most recent long-term earnings growth forecast consensus from the I/B/E/S unadjusted summary file prior to each return interval. The most recent long-term earnings growth forecast consensus must be no older than 90 days prior to return measurement.	I/B/E/S
<i>Momentum</i>	Momentum is the raw return for the six months prior to the earnings announcement starting at the beginning of month $t-6$ and ending at the end of month $t-1$ relative to the earnings announcement month.	CRSP
<i>Non Negative</i>	Indicator variable for non-negative earnings surprises.	I/B/E/S
<i>Persistence</i>	Earnings persistence, calculated as the AR(1) coefficient of regressing current income before extraordinary items on prior year's income before extraordinary items in the same fiscal quarter, calculated over trailing four years [IBQ].	Compustat
<i>Q4</i>	Indicator for the fourth fiscal period [FQTR].	Compustat
<i>Rep_Lag</i>	Reporting lag, calculated as the number of days between quarter-end and the earnings announcement date.	Compustat , I/B/E/S
<i>Return_Volatility</i>	Standard deviation of raw returns adjusted for delistings in the [-2,+2] window centered at the earnings announcement or in the non-earnings announcement period, depending on the specification. I define the non-earnings announcement period to start immediately after I/B/E/S issues revised long-term forecasts in the month subsequent to the prior fiscal quarter earnings announcement date and end in the fiscal quarter end date.	CRSP, I/B/E/S
<i>Revision</i>	Change in the median level of analysts' long-term earnings growth consensus forecast from before to after the earnings announcement date. I subtract the median level of the consensus forecast in the month prior to the earnings announcement date from the median level of the consensus forecast in the month after the earnings announcement date, scaled by price at the end of the fiscal quarter.	I/B/E/S
<i>ROA</i>	Income before extraordinary items divided over lagged total assets [IBQ/AT].	Compustat
<i>Size</i>	Market value of equity as of the end of the fiscal quarter [PRCCQ×CSHOQ].	Compustat
<i>UE</i>	Unexpected earnings, calculated as actual EPS per IBES minus the most recent consensus, scaled by price as of the end of the fiscal quarter. The most recent consensus must be no older than 90 days prior to return measurement. I use various return intervals including [-2,+2] and [-6,+2] in the main tests in Table 4 and [FQEND, 2], [Consensus, FQEND], [FQEND, -6], and [-6,+2] in Table 6. For each return interval, I construct actual EPS per IBES minus the most recent consensus prior to each return interval, scaled by price as of the end of the fiscal quarter. If the return interval starts prior to the end of the fiscal quarter (i.e., [Consensus, FQEND]), then I scale by price as of the end of the previous fiscal quarter.	I/B/E/S
<i>12_Month_Ret</i>	12-month returns, defined as the raw return for the 12 months prior to the earnings announcement starting at the beginning of month $t-12$ and ending at the end of month $t-1$ relative to the earnings announcement month.	CRSP

Figure 1: Heterogenous Earnings Growth Paths and the Earnings Announcement Premium

Figure 1A illustrates the independent variable construct of this study, the heterogeneity in expected earnings growth paths. I plot the expected earnings growth paths of two illustrative firms, A and B. Both firms differ in their expected earnings growth paths and annual rates of earnings growth across periods. Firm A (Firm B) is expected to accrue higher annual rates of earnings growth earlier (later) horizon. Figure 1B plots my predictions in graphical form. Earlier expected earnings growth concentration for firm A leads to higher announcement returns and greater resolution of long-term earnings growth uncertainty earlier in the horizon. The two arrows in the graph represent the two sources of variation examined in this study, *cross-sectional* and *within-firm* variation in the earnings announcement premium.

Figure 1A: Heterogenous Earnings Growth Paths

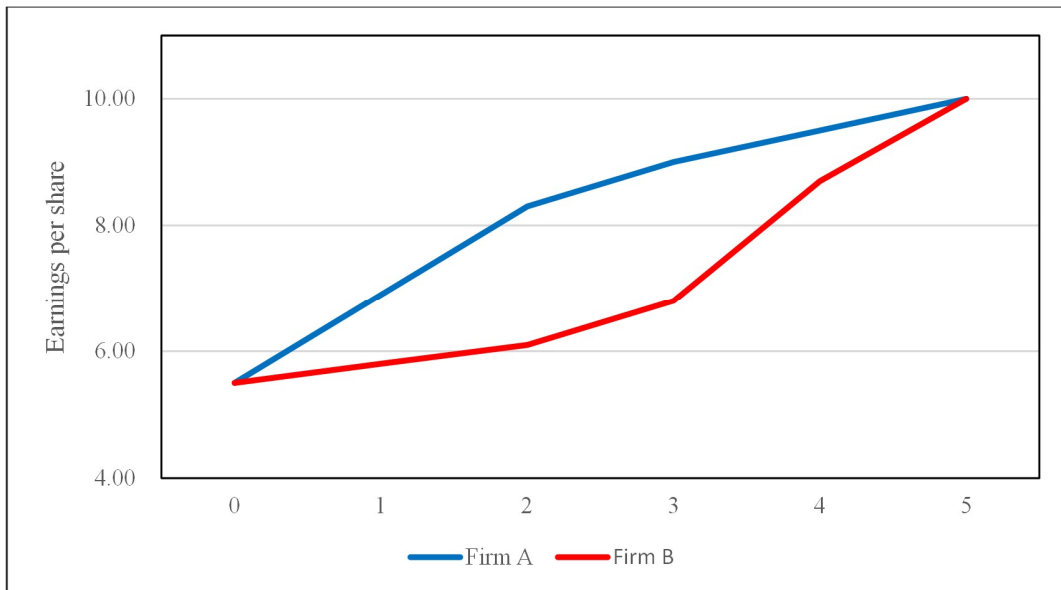


Figure 1B: Heterogenous Earnings Growth Paths, Uncertainty Resolution, and the Earnings Announcement Premium

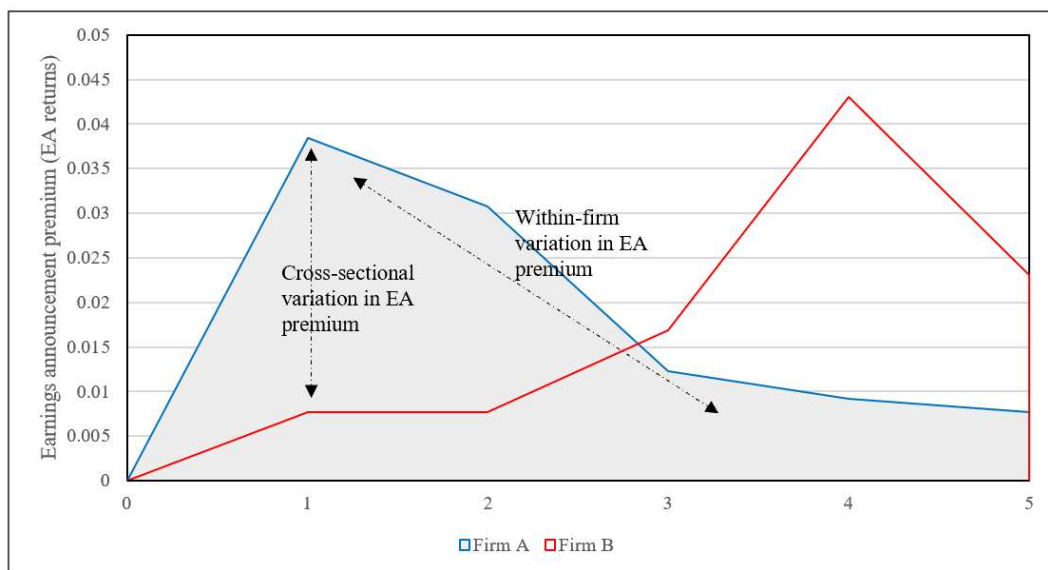


Figure 2: The Predictive Ability of *Early_Growth* Over Time Using Fama and Macbeth (1973) Cross-sectional Regressions

Figure 2 plots the quarterly cross-sectional Fama and Macbeth (1973) regression coefficients on *Early_Growth* from the regression in Equation (1) with $BHAR[-2,+2]$ as the dependent variable. The cross-sectional regression coefficients measure the difference in announcement returns between firms with high (Quintile 4) and low (Quintile 0) *Early_Growth* values. Coefficients are multiplied by 100 to reflect differences in basis points on the vertical axis. I also plot the five-year moving average of the quarterly cross-sectional regression coefficients (dashed line).

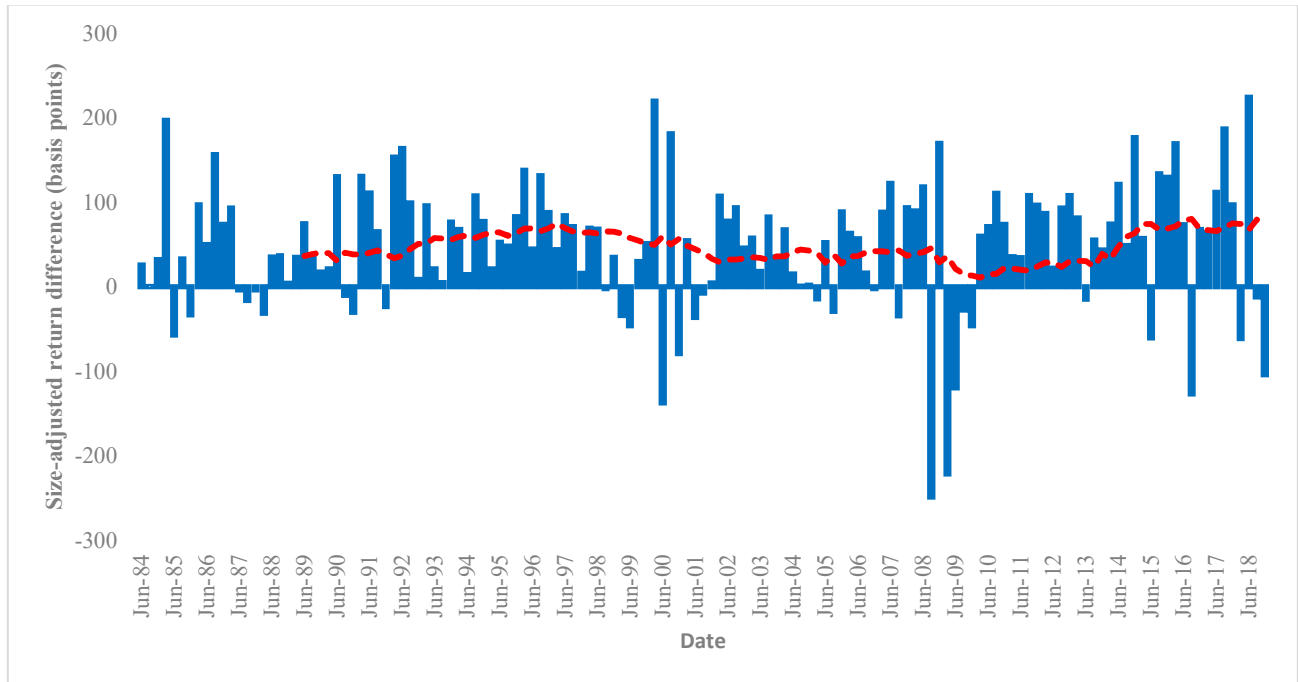


Figure 3: Earnings Announcement Windows

This figure presents the different return intervals used for testing P3 in Table 6.

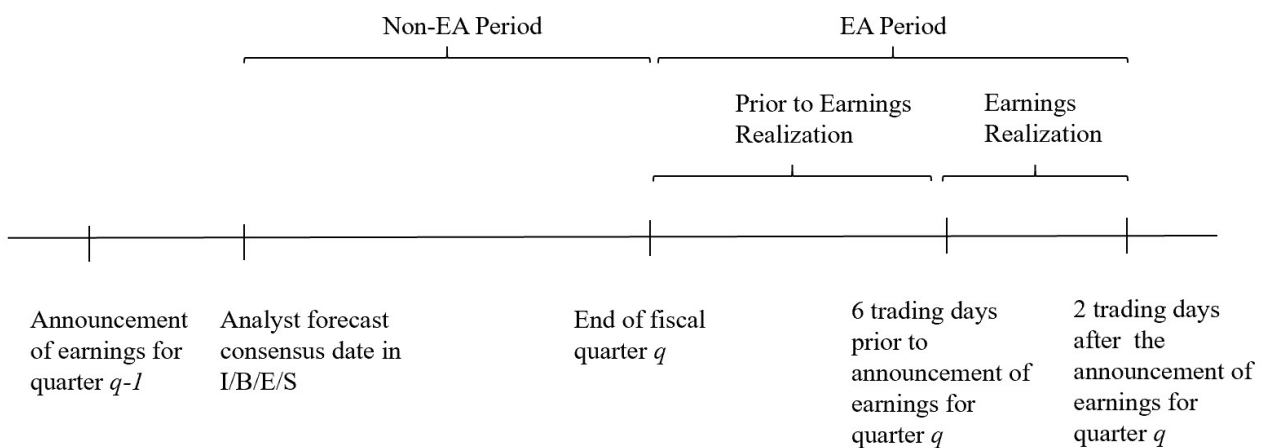


Figure 4: Return Differential Predicted by *Early Growth* in the Trading Days Around EAs

Figure 4A presents the coefficient on *Early_Growth* obtained from the regression of Equation (1), estimated separately using size-adjusted returns for each trading day in the [-6,+6] window around the earnings announcement date as the dependent variable. The *Early_Growth* coefficient measures the size-adjusted return differential between firms with high (Quintile 4) and low (Quintile 0) values of *Early_Growth*, when controlling for the earnings surprise and other return predictors. The vertical axis is presented in basis points. The horizontal axis represents trading days relative to the earnings announcement date. Figure 4B presents the same regression but adding firm fixed effects. Filled (patterned) bars reflect return differences significantly different from zero at the 1% level (5% or 10% level).

Figure 4A: Cross-sectional *Early_Growth* Return Differential Around the 13 Trading Days Surrounding EAs

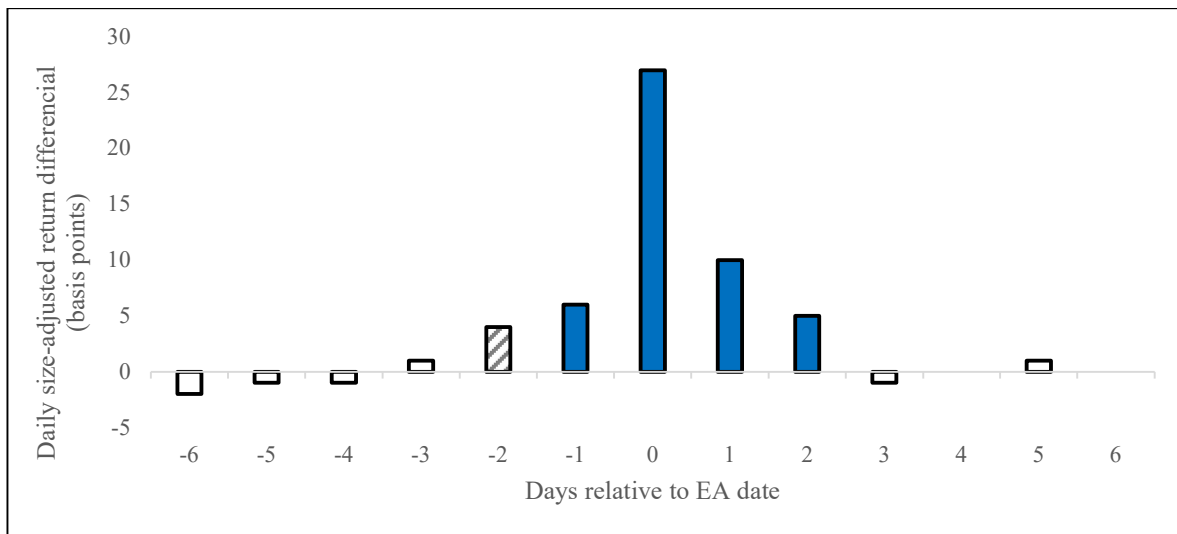


Figure 4B: Within-firm *Early_Growth* Return Differential Around the 13 Trading Days Surrounding EAs

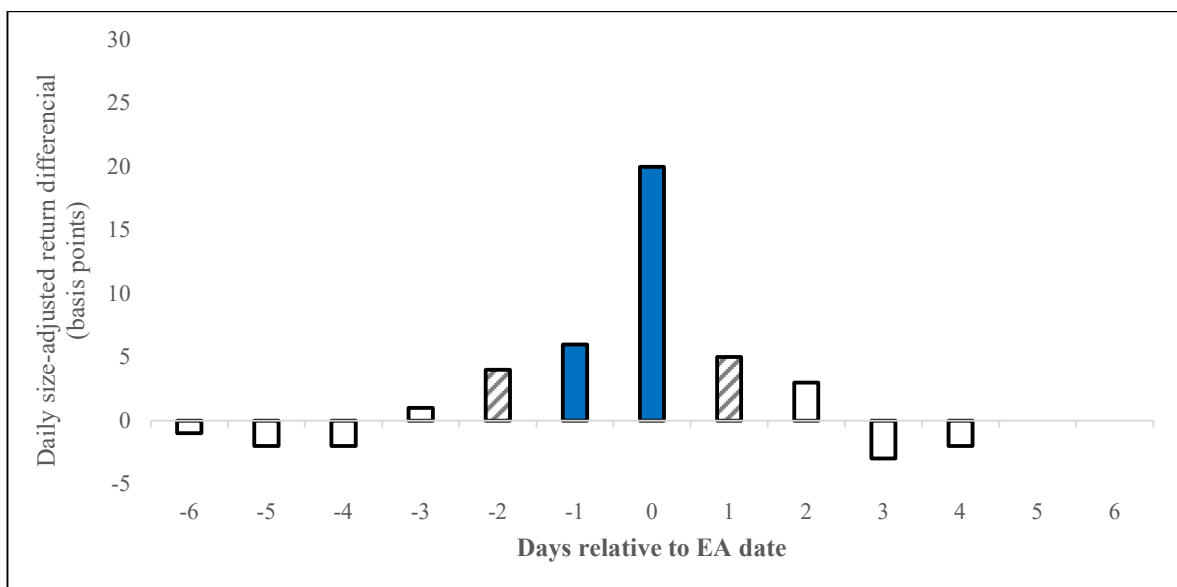


Table 1: Sample Selection

This table presents the sample selection criteria. Refer to Appendix C for detailed variable definitions.

Sample selection criteria	Observations
<i>Firm-quarters with GVKEY-PERMNO-TICKER and variables to calculate Early Growth from 1983 to 2018</i>	273,957
<i>Less: Observations without earnings announcement dates in Compustat</i>	(12,966)
<i>Less: Observations with a difference between Compustat and I/B/E/S earnings announcement dates in excess of 5 days</i>	(3,879)
<i>Less: Observations without 2-digit SIC codes</i>	(12)
<i>Less: Observations with earnings announcement dates occurring (1) more than 100 days after the fiscal period end date or (2) after the following fiscal period end date</i>	(1,209)
<i>Less: Observations with share price less than \$5</i>	(11,533)
<i>Less: Observations with share codes other than 10 or 11 or missing return data</i>	(8,502)
Total firm-quarter observations	230,728

Table 2: Descriptive Statistics

Panel A presents the descriptive statistics of *Early_Growth*. Panel B presents the properties of *Early_Growth* using variation in one-year ahead (*ST_Growth*) and long-term (*LT_Growth*) earnings growth rates. Panel C calculates the earnings announcement premium for observations with both an actual and expected earnings announcement date. Within-firm returns are defined as raw returns less the average return for the same firm in the [-51,-11] window relative to the earnings announcement date. *t*-stats are determined on the significance across all firms and quarters with standard errors clustered by firm and earnings announcement date. Panel D presents descriptive statistics and Panel E presents the correlation matrix for selected variables. Refer to Appendix C for variable definitions.

Panel A: Descriptive Statistics of Early_Growth by Quintiles

<i>Early_Growth</i> Quintiles	N	Mean	25 th Pct.	Median	75 th Pct.	Std. Dev.
0	43,475	0.80	0.72	0.85	0.92	0.17
1	47,462	0.95	0.93	0.97	0.99	0.08
2	47,583	1.01	0.98	1.00	1.03	0.08
3	47,451	1.10	1.02	1.06	1.12	0.16
4	44,757	1.84	1.16	1.35	1.86	1.41
Total	230,728	1.14	0.95	1.00	1.10	0.73

Panel B: Characteristics of Early Growth and LT Growth Quintiles- Median Statistics

<i>Early_Growth</i> Quintiles	<i>ST_Growth</i> (%)	<i>LT_Growth</i> (%)	<i>LT_Growth</i> Quintiles	<i>ST_Growth</i> (%)	<i>LT_Growth</i> (%)	<i>Early_Growth</i>
	(1)	(2)		(3)	(4)	(5)
0	-2.7	15.0	0	9.8	9.0	1.0
1	9.5	14.0	1	12.0	11.9	1.0
2	14.2	13.5	2	14.0	14.0	1.0
3	21.7	14.0	3	17.5	17.0	1.0
4	58.3	15.0	4	25.4	25.0	1.0

Table 2, continued*Panel C: The Earnings Announcement Premium*

Return Measurement	Return Intervals	Observations	Returns	t-stat
<i>Comparison to prior literature</i>				
Market-adjusted	BHAR [-1,+1]	230,725	0.0022	(9.42)
Within-firm	BHAR [-1,+1]	230,725	0.0030	(6.70)
<i>Actual earnings announcement dates</i>				
Size-adjusted	BHAR [-1,+1]	224,534	0.0025	(12.31)
Size-adjusted	BHAR [-2,+2]	224,534	0.0030	(12.94)
Size-adjusted	BHAR [EA Month]	224,534	0.0035	(11.81)
<i>Expected earnings announcement dates</i>				
Size-adjusted	BHAR [-1,+1]	224,534	0.0014	(9.48)
Size-adjusted	BHAR [-2,+2]	224,534	0.0022	(11.64)
Size-adjusted	BHAR [EA Month]	224,534	0.0032	(12.70)

Panel D: Descriptive Statistics

Variables	N	Mean	25 th Pct.	Median	75 th Pct.	Std.Dev.
<u>Main Variables</u>						
<i>Early_Growth</i>	230,728	1.140	0.948	1.000	1.100	0.728
<i>BHAR [-2,2]- Size-adjusted</i>	230,584	0.003	-0.035	0.002	0.041	0.083
<i>BHAR [-6,2]- Size-adjusted</i>	230,584	0.004	-0.042	0.002	0.048	0.093
<i>UE</i>	222,059	-0.001	0.000	0.001	0.006	0.027
<i>Non_Negative</i>	222,059	0.739	0.000	1.000	1.000	0.439
<i>Change_Dis</i>	176,339	0.000	-0.005	0.000	0.005	0.086
<i>Return_Volatility [-2,2]</i>	230,728	0.031	0.015	0.024	0.039	0.025
<u>Selected Control Variables</u>						
<i>Book-to-Market</i>	230,728	0.537	0.288	0.471	0.718	0.344
<i>ME</i>	230,108	4993.0	290.0	910.0	3073.0	15557.0
<i>ROA</i>	230,490	0.015	0.004	0.013	0.024	0.020
<i>Persistence</i>	229,248	0.229	-0.293	0.167	0.808	1.180
<i>Earnings_Volatility</i>	228,153	0.482	0.108	0.218	0.473	0.829
<i>IO</i>	230,728	0.494	0.228	0.525	0.759	0.325
<i>Beta</i>	230,728	0.959	0.590	0.919	1.270	0.518
<i>Rep_Lag</i>	230,728	28.600	21.000	27.000	35.000	11.200
<i>Loss</i>	230,728	0.101	0.000	0.000	0.000	0.302
<i>LTG</i>	225,564	15.300	10.000	14.000	19.800	8.070
<i>Firm_Age</i>	230,728	19.400	6.000	14.000	27.000	17.800
<i>Dispersion</i>	221,949	0.070	0.015	0.030	0.067	0.141
<i>Momentum</i>	230,707	0.079	-0.093	0.056	0.212	0.316
<i>12_Month_Ret</i>	230,708	0.185	-0.102	0.116	0.361	0.556
<i>Abn Idio Vol</i>	230,723	0.423	-0.210	0.183	0.762	0.951

Table 2, continued

Panel E: Pairwise Correlation Table

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)Early_Growth	1								
(2)BHAR [-2,2]Size-adjusted	0.006***	1							
(3)Non_Negative	-0.046***	0.200***	1						
(4)UE	-0.028***	0.071***	0.398***	1					
(5)Book-to-Market	0.054***	0.006***	-0.147***	-0.051***	1				
(6)Log(ME)	-0.111***	-0.009***	0.119***	0.057***	-0.277***	1			
(7)Log(IO)	-0.044***	-0.001	0.042***	0.011***	-0.073***	0.319***	1		
(8)Beta	0.009***	0.004*	0.007***	-0.029***	-0.176***	0.219***	0.191***	1	
(9)Log(Firm Age)	-0.028***	-0.006***	0.016***	0.046***	0.110***	0.420***	0.083***	-0.040***	1

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3: Portfolio Analysis- Heterogenous Earnings Growth Paths and the EA Premium

This table presents the mean returns to portfolios formed using *Early_Growth*. *Early_Growth* proxies for the expected timing of earnings growth as defined in Section III. Each calendar year-quarter, *Early_Growth* is sorted into quintiles within 2-digit SIC industry membership. Columns (1) to (3) present the results using the buy-and-hold raw returns (adjusted for delistings) around the return interval centered at the earnings announcement date. Columns (4) to (6) present the results using the size-adjusted buy-and-hold returns constructed as the raw return (adjusted for delistings) less the CRSP year-end capitalization decile return. Columns (7) to (9) present the results using the market-adjusted buy-and-hold returns constructed as the raw returns (adjusted for delistings) less the value-weighted market portfolio return per CRSP. Refer to Appendix C for detailed variable definitions. I calculate the difference between the lowest and highest quintile and perform a *t*-test for mean differences with standard errors clustered by firm and earnings announcement date. *** indicates significance at 1%; ** at 5%; and * at 10%, respectively.

	Raw Returns			Size-adjusted returns			Market-adjusted returns					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			
<i>Early_Growth</i>	N	[-1,+1]	[-2,+2]	[-6,+2]	N	[-1,+1]	[-2,+2]	[-6,+2]	N	[-1,+1]	[-2,+2]	[-6,+2]
0	43,475	0.0024	0.0031	0.0055	43,442	0.0014	0.0016	0.0025	43,475	0.0011	0.0011	0.0017
1	47,462	0.0029	0.0039	0.0059	47,432	0.0018	0.0021	0.0025	47,462	0.0016	0.0019	0.0022
2	47,583	0.0038	0.0055	0.0074	47,539	0.0027	0.0036	0.0039	47,583	0.0025	0.0034	0.0036
3	47,451	0.0037	0.0052	0.0075	47,435	0.0028	0.0036	0.0044	47,451	0.0025	0.0033	0.0038
4	44,757	0.0047	0.0057	0.0072	44,736	0.0037	0.0042	0.0043	44,757	0.0033	0.0036	0.0034
Diff (4-0)		0.0023***	0.0026***	0.0017**		0.0023***	0.0027***	0.0018**		0.0022***	0.0026***	0.0017**

Table 4: Heterogenous Earnings Growth Paths and the EA Premium

Panel A (Panel B) presents the results of estimating Equation (1) where I examine the cross-sectional (within-firm) relation between the heterogeneity in expected earnings growth paths and announcement returns. *BHAR*, the dependent variable, is size-adjusted buy-and-hold returns. *Early_Growth* proxies for the expected timing of earnings growth as defined in Section III. Each calendar year-quarter, all independent variables are sorted into quintiles within 2-digit SIC industry membership. The quintile portfolios (0 to 4) are then divided by 4 so that the variable ranges from 0 to 1. Column (4) uses expected earnings announcement dates. Refer to Appendix C for detailed variable definitions. *t*-statistics are presented in parentheses. *** indicates significance at 1%; ** at 5%; and * at 10%, respectively.

Panel A: Cross-sectional Variation in the EA Premium

	Announcement Returns				Falsification Tests	
	(1)	(2)	(3)	(4)	(5)	(6)
BHAR Interval	[-2,+2]	[-2,+2]	[-6,+2]	[-5,+5] Exp	Non-Negative	UE
<i>Early_Growth</i>	0.0050*** (8.79)	0.0053*** (8.91)	0.0050*** (7.55)	0.0024*** (3.47)	-0.0204*** (-5.21)	-0.0012*** (-3.28)
<i>UE</i>	0.0530*** (59.37)	0.0513*** (54.13)	0.0561*** (55.28)			
<i>Book-to-Market</i>		0.0053*** (6.81)	0.0077*** (8.59)	0.0116*** (13.69)	0.0243*** (3.35)	0.0012 (1.63)
<i>Size</i>		-0.0039*** (-4.67)	-0.0048*** (-4.96)	-0.0029*** (-3.27)	0.0610*** (7.07)	0.0002 (0.25)
<i>ROA</i>		0.0084*** (10.99)	0.0116*** (13.09)	0.0219*** (24.68)	0.1434*** (22.06)	0.0040*** (6.75)
<i>Persistence</i>		0.0020*** (3.24)	0.0024*** (3.51)	0.0044*** (6.29)	0.0363*** (9.27)	0.0002 (0.76)
<i>Earn_Volatility</i>		-0.0005 (-0.74)	0.0003 (0.49)	0.0018*** (2.61)	0.0069 (1.35)	-0.0007 (-1.32)
<i>Ret_Volatility</i>		0.0020*** (2.88)	0.0022*** (2.62)	-0.0005 (-0.58)	-0.0408*** (-9.30)	-0.0027*** (-7.12)
<i>Log(IO)</i>		0.0017** (2.39)	0.0006 (0.73)	0.0021*** (2.64)	0.0240*** (3.27)	0.0008 (1.21)
<i>Beta</i>		0.0014* (1.92)	0.0037*** (4.51)	0.0033*** (4.07)	0.0138*** (2.69)	-0.0005 (-1.09)
<i>Log(Rep_Lag)</i>		-0.0035*** (-3.78)	-0.0041*** (-3.64)	-0.0010 (-0.92)	-0.0172** (-2.03)	-0.0034*** (-3.64)
<i>Loss</i>		-0.0103*** (-10.72)	-0.0113*** (-10.34)	-0.0141*** (-12.93)	-0.1789*** (-27.03)	-0.0077*** (-16.36)
<i>Q4</i>		0.0034*** (4.65)	0.0043*** (5.14)	0.0036*** (4.38)	0.0014 (0.34)	0.0005* (1.76)
<i>LTG</i>		-0.0011 (-1.56)	0.0004 (0.48)	-0.0008 (-0.92)	0.0138** (2.29)	-0.0000 (-0.04)
<i>Log(FirmAge)</i>		-0.0016** (-2.16)	-0.0021** (-2.40)	-0.0008 (-0.99)	-0.0246*** (-3.15)	0.0001 (0.16)
<i>Dispersion</i>		0.0048*** (7.24)	0.0055*** (7.44)	0.0038*** (5.33)	-0.0874*** (-18.28)	-0.0019*** (-4.25)
<i>Momemtum</i>		-0.0057*** (-7.55)	-0.0055*** (-6.25)	-0.0017** (-1.98)	0.0769*** (22.32)	0.0025*** (12.19)
<i>12_Month_Ret</i>		-0.0037*** (-4.80)	-0.0038*** (-4.31)	-0.0019** (-2.12)	0.0841*** (20.15)	0.0028*** (9.31)
<i>Abn_Idio_Vol</i>		0.0039*** (5.15)	-0.0014 (-1.64)		-0.0356*** (-11.81)	-0.0004*** (-2.59)
Observations	221,376	203,461	203,009	206,462	203,596	203,596
Adj R-squared	0.059	0.063	0.066	0.023	0.109	0.049
Clustering	Date Firm	Date Firm	Date Firm	ExpDate Firm	Date Firm	Date Firm
FE	Date	Date	Date	ExpDate	Date	Date

Table 4, continued*Panel B: Within-firm Variation in the EA Premium*

	Announcement Returns				
	(1)	(2)	(3)	(4)	(5)
BHAR Interval	[-2,+2]	[-2,+2]	[-2,+2]	[-6,+2]	[-5,+5] Exp
<i>Early_Growth</i>	0.0041*** (6.41)	0.0035*** (5.72)	0.0039*** (6.41)	0.0036*** (5.19)	0.0021*** (2.90)
<i>UE</i>		0.0662*** (64.83)	0.0635*** (58.86)	0.0681*** (59.70)	
<i>Book-to-Market</i>			0.0051*** (4.82)	0.0087*** (7.17)	0.0187*** (16.15)
<i>Size</i>			-0.0163*** (-10.31)	-0.0220*** (-12.07)	-0.0339*** (-18.50)
<i>ROA</i>			0.0109*** (12.12)	0.0139*** (13.42)	0.0296*** (27.49)
<i>Persistence</i>			0.0013** (2.06)	0.0018*** (2.59)	0.0032*** (4.53)
<i>Earn_Volatility</i>			-0.0013* (-1.85)	-0.0010 (-1.28)	0.0004 (0.46)
<i>Ret_Volatility</i>			0.0024*** (3.27)	0.0023*** (2.75)	0.0006 (0.75)
<i>Log(10)</i>			-0.0045*** (-3.91)	-0.0068*** (-5.34)	-0.0037*** (-2.85)
<i>Beta</i>			0.0016** (2.02)	0.0029*** (3.37)	0.0024*** (2.79)
<i>Log(Rep_Lag)</i>			-0.0048*** (-4.05)	-0.0048*** (-3.56)	-0.0006 (-0.41)
<i>Loss</i>			-0.0077*** (-7.55)	-0.0092*** (-8.25)	-0.0114*** (-10.35)
<i>Q4</i>			0.0040*** (5.25)	0.0049*** (5.70)	0.0037*** (4.38)
<i>LTG</i>			-0.0012 (-1.44)	0.0001 (0.07)	-0.0009 (-0.91)
<i>Log(FirmAge)</i>			-0.0021 (-1.30)	-0.0038** (-2.03)	-0.0013 (-0.72)
<i>Dispersion</i>			0.0056*** (7.63)	0.0061*** (7.40)	0.0057*** (7.18)
<i>Momentum</i>			-0.0074*** (-9.89)	-0.0076*** (-8.73)	-0.0033*** (-3.89)
<i>12_Month_Ret</i>			-0.0049*** (-6.34)	-0.0049*** (-5.49)	-0.0025*** (-2.70)
<i>Abn_Idio_Vol</i>			0.0039*** (5.36)	-0.0014* (-1.75)	
Observations	229,871	221,176	203,207	202,756	206,140
Adj R-squared	0.029	0.083	0.089	0.095	0.047
Clustering	Date Firm	Date Firm	Date Firm	Date Firm	ExpDate Firm
FE	Date Firm	Date Firm	Date Firm	Date Firm	ExpDate Firm

Table 5: Heterogenous Earnings Growth Paths and the Resolution of Long-term Earnings Growth Uncertainty

This table presents the results of estimating Equation (2) where I examine the relation between the heterogeneity in expected earnings growth paths and the resolution of long-term earnings growth uncertainty around earnings announcements. *Change_Disp* is defined as the change in the standard deviation of analysts' long-term earnings growth forecasts from one month before to one month after the earnings announcement date, scaled by price. *Ret_Volatility* is the standard deviation of returns around the trading window centered around the earnings announcement date. *Early_Growth* proxies for the expected timing of earnings growth as defined in Section III. Each calendar year-quarter, all independent variables are sorted into quintiles within 2-digit SIC industry membership codes. The quintile portfolios (0 to 4) are then divided by 4 so that the variable ranges from 0 to 1. Refer to Appendix C for detailed variable definitions. *t*-statistics are presented in parentheses. *** indicates significance at 1%; ** at 5%; and * at 10%, respectively.

	Change in Dispersion		Return_Volatility			
	(1) Change_ Disp	(2) Change_ Disp	(3) [-2,+2]	(4) [-2,+2]	(5) [-2,+2]	(6) [-2,+2]
<i>Early_Growth</i>	-0.0012* (-1.83)	-0.0017*** (-2.60)	0.0020*** (8.80)	0.0010*** (4.70)	0.0011*** (6.32)	0.0010*** (5.99)
<i>Revision</i>		0.0119*** (10.93)				
<i>UE</i>		-0.0020*** (-3.05)				
<i>BHAR[-2,+2]</i>		-0.0003 (-0.39)				
<i>Book-to-Market</i>		0.0017** (2.42)		0.0009** (2.52)		0.0012*** (4.22)
<i>Size</i>		-0.0001 (-0.19)		-0.0096*** (-22.62)		-0.0034*** (-7.02)
<i>ROA</i>		-0.0004 (-0.57)		0.0022*** (7.88)		0.0000 (0.23)
<i>Persistence</i>		-0.0004 (-0.62)		-0.0013*** (-6.98)		0.0002 (1.01)
<i>Earnings_Volatility</i>		-0.0001 (-0.20)		0.0012*** (4.97)		0.0021*** (11.14)
<i>Log(IO)</i>		0.0001 (0.12)		0.0010*** (2.60)		0.0001 (0.27)
<i>Beta</i>		-0.0005 (-0.83)		0.0110*** (40.94)		0.0063*** (28.53)
<i>Log(Rep_Lag)</i>		-0.0007 (-0.91)		-0.0018*** (-4.41)		0.0006** (2.27)
<i>Loss</i>		0.0029** (2.52)		0.0071*** (22.03)		0.0031*** (12.27)
<i>LTG</i>		0.0005 (0.67)		0.0070*** (22.70)		0.0026*** (11.20)
<i>Log(FirmAge)</i>		-0.0004 (-0.60)		-0.0058*** (-15.07)		-0.0021*** (-4.46)
<i>Constant</i>	0.0005* (1.79)	-0.0041*** (-3.19)	0.0299*** (155.04)	0.0273*** (49.43)	0.0303*** (391.38)	0.0262*** (55.22)
Observations	175,641	168,346	230,173	221,193	230,015	220,808
Adjusted R-squared	0.003	0.006	0.132	0.212	0.348	0.358
Clustering	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm
FE	Date	Date	Date	Date	Date Firm	Date Firm

Table 6: Heterogenous Earnings Growth Paths and the Timing of the Return Differential- EA vs. Non-EA Periods

This table presents the results of testing the predictive ability of *Early_Growth* for future returns between earnings and non-earnings announcement periods. *BHAR*, the dependent variable, is the size-adjusted buy-and-hold returns. I define the non-earnings announcement period to start immediately after I/B/E/S issues revised long-term forecasts in the month subsequent to the *prior* fiscal quarter earnings announcement date and end in the fiscal quarter end date [Consensus, FQEND]. I define the earnings announcement period to start at the fiscal period end date and end two trading days following the earnings announcement date [FQEND,+2]. Within the earnings announcement period, I divide the return interval between the period prior to the earnings realization and around the earnings realization. The period prior to the earnings realization is defined to start at the fiscal period end date and end six trading days prior to earnings announcement date, not inclusive [FQEND,-6]. The period around to the earnings realization is defined to start six trading days prior to earnings announcement date and end two trading days after the earnings announcement date [-6,+2]. *Early_Growth* proxies for the expected timing of earnings growth as defined in Section III. Each calendar year-quarter, all independent variables are sorted into quintiles within 2-digit SIC industry membership codes. The quintile portfolios (0 to 4) are then divided by 4 so that the variable ranges from 0 to 1. Refer to Appendix C for detailed variable definitions. *t*-statistics are presented in parentheses. *** indicates significance at 1%; ** at 5%; and * at 10%, respectively.

	Non-EA vs. EA Periods				Within EA Period			
	Non-EA Period		EA Period		Prior to Earnings Realization		Around Earnings Realization	
BHAR Interval	(1) [Consensus, FQEND]	(2) [Consensus, FQEND]	(3) [FQEND, +2]	(4) [FQEND, +2]	(5) [FQEND, -6]	(6) [FQEND, -6]	(7) [-6, +2]	(8) [-6, +2]
<i>Early_Growth</i>	0.0004 (0.61)	0.0006 (0.82)	0.0022** (2.55)	0.0057*** (6.42)	-0.0003 (-0.60)	0.0010 (1.57)	0.0026*** (4.17)	0.0050*** (7.55)
<i>UE</i> and Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	224,573	204,608	229,967	204,896	226,848	202,903	230,029	203,009
Adjusted R-squared	0.016	0.043	0.023	0.073	0.026	0.040	0.014	0.066
Clustering	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm
FE	Date	Date	Date	Date	Date	Date	Date	Date

Table 7: Cross-sectional Tests

This table presents the results from cross-sectional tests of whether the relation between the heterogeneity in expected earnings growth paths and announcement returns varies between sub-samples with different levels of abnormal idiosyncratic volatility, different levels of expected long-term earnings growth, and with differences in firms' information environments in Panel A, Panel B, and Panel C, respectively. Each calendar year-quarter, I split the sample into three groups based on the level of abnormal idiosyncratic volatility, the level of analysts' expected long-term earnings growth forecasts in the month prior to each announcement, and the level of analyst coverage (my proxy for firms' information environments) in the month prior to each announcement (High, Medium, Low). *BHAR*, the dependent variable, is the size-adjusted buy-and-hold returns. *Early_Growth* proxies for the expected timing of earnings growth as defined in Section III. For each sub-sample and calendar year-quarter, all independent variables are sorted into quintiles within 2-digit SIC industry membership codes. The quintile portfolios (0 to 4) are then divided by 4 so that the variable ranges from 0 to 1. Refer to Appendix C for detailed variable definitions. *t*-statistics are presented in parentheses. *** indicates significance at 1%; ** at 5%; and * at 10%, respectively.

Panel A: Level of Abnormal Idiosyncratic Volatility

Level of Abnormal Idiosyncratic Volatility	High	Medium	Low	High vs. Low
	(1)	(2)	(3)	(4)
	[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]
<i>Early_Growth</i>	0.0062*** (4.36)	0.0057*** (6.63)	0.0033*** (4.84)	0.0032*** (4.64)
<i>High</i>				-0.0311*** (-9.24)
<i>Early_Growth x High</i>				0.0033** (2.20)
Controls	Yes	Yes	Yes	Yes
Controls x High	N/A	N/A	N/A	Yes
Observations	67,259	66,962	65,643	134,861
Adjusted R-squared	0.099	0.049	0.052	0.091
Clustering	Date Firm	Date Firm	Date Firm	Date Firm
FE	Date	Date	Date	Date

Panel B: Level of Long-term Earnings Growth

Level of Long-term Growth Earnings Forecasts	High	Medium	Low	High vs. Low
	(1)	(2)	(3)	(4)
	[-2, +2]	[-2, +2]	[-2, +2]	[-2, +2]
<i>Early_Growth</i>	0.0051*** (3.88)	0.0049*** (5.22)	0.0050*** (5.78)	0.0056*** (6.36)
<i>High</i>				-0.0110*** (-3.62)
<i>Early_Growth x High</i>				-0.0005 (-0.30)
Controls	Yes	Yes	Yes	Yes
Controls x High	N/A	N/A	N/A	Yes
Observations	65,926	67,631	66,329	134,232
Adjusted R-squared	0.063	0.077	0.093	0.062
Clustering	Date Firm	Date Firm	Date Firm	Date Firm
FE	Date	Date	Date	Date
Mean Long-term Growth Earnings Forecasts	23.8%	13.9%	8.2%	

Table 7, continued*Panel C: Differences in Firms' Information Environments*

Level Analyst Following	High	Medium	Low	High vs. Low
	(1)	(2)	(3)	(4)
	[-2, +2]	[-2, +2]	[-2, +2]	[-2, +2]
<i>Early_Growth</i>	0.0023** (2.25)	0.0036*** (3.28)	0.0086*** (8.26)	0.0079*** (8.32)
<i>High</i>				0.0169*** (5.26)
<i>Early_Growth x High</i>				-0.0059*** (-4.14)
Controls	Yes	Yes	Yes	Yes
Controls x High	N/A	N/A	N/A	Yes
Observations	66,261	66,045	67,503	135,641
Adjusted R-squared	0.048	0.057	0.073	0.063
Clustering	Date Firm	Date Firm	Date Firm	Date Firm
FE	Date	Date	Date	Date
Mean Analyst Following	15.1	7.0	3.1	

Table 8: Robustness Tests

This table presents the results of testing whether the return pattern documented in the main tests can be explained by abnormal trading volume, error in investors' expectations, or analysts' forecast bias patterns, as documented in prior literature. These include return patterns associated with abnormal trading volume, forecast pessimism, forecast optimism, the slow incorporation of information to long-term forecasts, the post-earnings announcement drift phenomenon (PEAD), and investors' revisions of long-term growth expectations around announcements. *BHAR*, the dependent variable, is the size-adjusted buy-and-hold returns. *Early_Growth* proxies for the expected timing of earnings growth as defined in Section III. Each calendar year-quarter, all independent variables are sorted into quintiles within 2-digit SIC industry membership codes. The quintile portfolios (0 to 4) are then divided by 4 so that the variable ranges from 0 to 1. Refer to Appendix C for detailed variable definitions. *t*-statistics are presented in parentheses. *** indicates significance at 1%; ** at 5%; and * at 10%, respectively.

Can it be explained by?	Trading Volume	Forecast Pessimism		Forecast Optimism	Error in LTG Forecasts	PEAD				Revisions in LTG Expectations
	Q1-Q4	Q1-Q4		Only Q2 to Q4	Only Q3 and Q4	Only Q1	Only Q2	Only Q3	Only Q4	Q1 to Q4
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>DepVar: BHAR</i>		[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]	[-2,+2]
<i>Early_Growth</i>	0.0054*** (8.98)	0.0037*** (6.11)	0.0041*** (6.38)	0.0029*** (4.32)	0.0027*** (3.28)	0.0059*** (4.79)	0.0039*** (3.20)	0.0024** (2.05)	0.0031** (2.52)	0.0048*** (7.98)
<i>AbVolume</i>	-0.0061*** (-8.72)									
<i>Pess_Combined</i>		0.0031*** (5.28)	0.0010* (1.66)							
<i>Revision</i>										0.0032*** (18.58)
Excludes <i>UE</i>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Controls	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	203,461	204,002	190,364	157,945	103,328	48,979	52,176	50,841	49,595	198,233
Adjusted R-squared	0.063	0.011	0.022	0.021	0.023	0.040	0.026	0.024	0.036	0.064
Clustering	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm	Date Firm
FE	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date