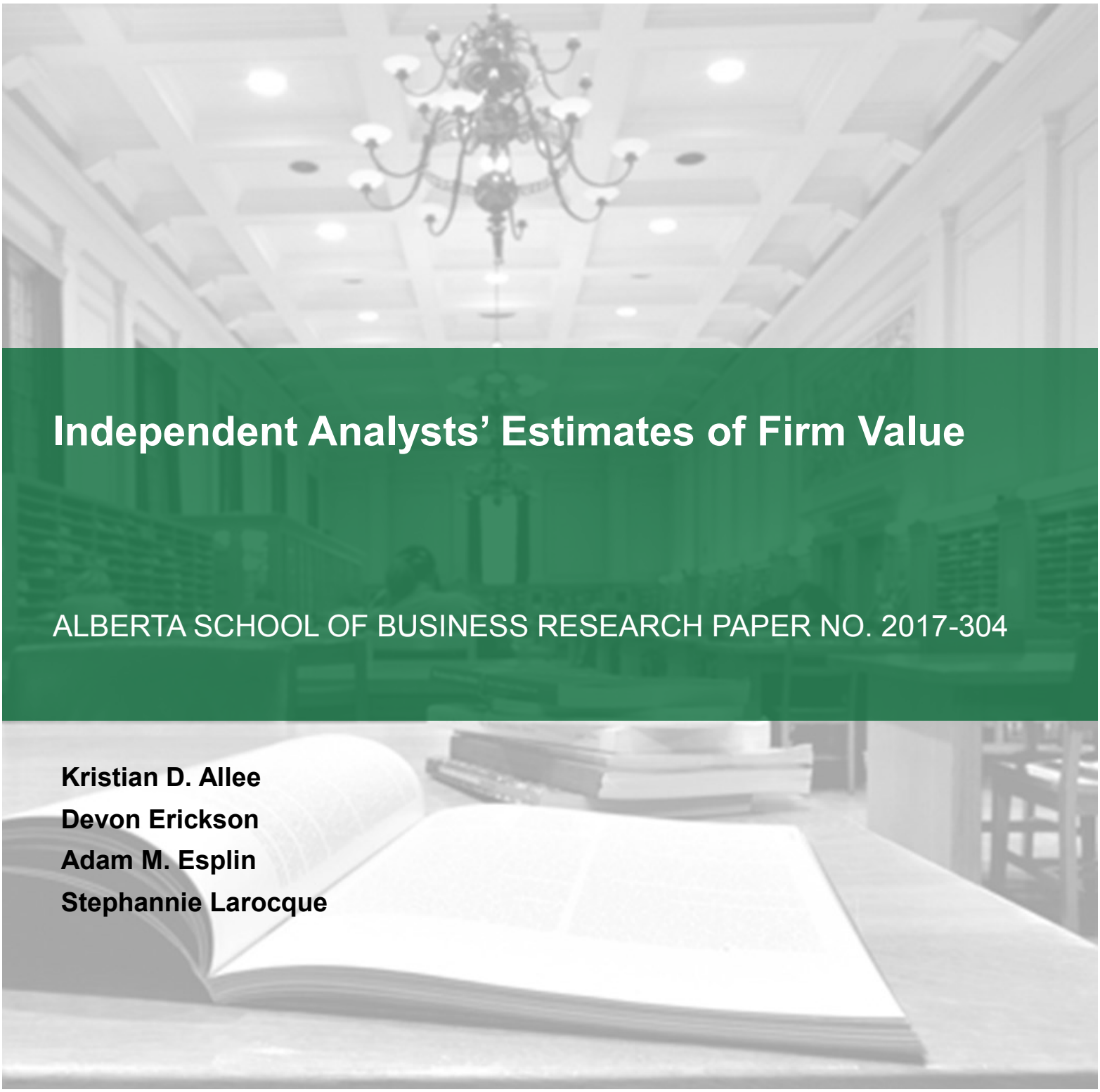

Independent Analysts' Estimates of Firm Value

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Kristian D. Allee
Devon Erickson
Adam M. Esplin
Stephannie Larocque

UNIVERSITY OF ALBERTA
ALBERTA SCHOOL OF BUSINESS

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Kristian D. Allee*
kdallee@uark.edu
University of Arkansas

Devon Erickson
devon.erickson@usu.edu
Utah State University

Adam Esplin
aesplin@ualberta.ca
University of Alberta

Stephannie Larocque
larocque.1@nd.edu
University of Notre Dame

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Independent Analysts' Estimates of Firm Value

ABSTRACT

This study provides new evidence on the usefulness of independent analysts' research for firm value. While prior research finds that the stock recommendations and EPS forecasts of independent analysts underperform those of non-independents, we show that, consistent with the motivation behind the Global Settlement, independent analysts predict firm value with less optimism than do investment-bank analysts, particularly for firms with recent stock price momentum, higher valuations, and greater stock price volatility. Independent analysts' less optimistic price targets appear to stem from their less optimistic long-term growth forecasts. At the same time, the lower accuracy of independent analysts' EPS forecasts and, in some specifications, price targets may reflect their relative lack of resources and/or private information.

JEL classification: G3, G17, M4, M41

Keywords: Analysts, Valuation, Forecasts, Long-Term Growth, Cost of Capital

1. Introduction

Market participants and academic researchers often rely on financial analysts' estimates in order to evaluate firms' performance and value. However, prior research suggests that analysts employed by investment banks face incentives that lead to optimistically biased earnings forecasts and stock recommendations (Dugar and Nathan 1995; Lin and McNichols 1998; Dechow, Hutton, and Sloan 2000). The expansion of independent equity research since the 2003 Global Settlement provides an opportunity for us to better understand the usefulness of independent analysts' research. Given the long-term focus and differing incentives of independent analysts, the analysis contained in their research reports may provide useful information for both investors and academics. At the same time, independent analysts may lack the resources, expertise, and/or access to private information that investment-bank analysts enjoy. We thus investigate the usefulness of independent analysts' estimates of firm value relative to those of analysts employed by investment banks.[1,2]

We know very little about the price targets put forward by independent analysts, or about how they compare with investment-bank analysts' price targets. To date, research suggests that sell-side analysts' price targets provide limited value as investment signals (Brav and Lehavy 2003; Asquith, Mikhail, and Au 2005; Bradshaw, Brown, and Huang 2013; Gleason, Johnson, and Li 2013). With respect to independent analysts, prior research finds that they underperform investment-bank analysts in accurately forecasting earnings (Gu and Xue 2008; Jacob, Rock, and Weber 2008) and in the returns to their recommendations (Barber et al. 2007). At the same time, independent analysts' reports often differ in scope from other analysts' reports. For

[1] We follow prior literature (e.g., Barber, Lehavy, and Trueman 2007) in using the term "independent" to refer to either pure research firms or firms with research and brokerage activities, but without investment banking business. We refer to analysts employed by investment banks as "investment-bank" analysts.

[2] Results throughout are similar when we compare independent analysts' estimates against those provided by all other analysts in I/B/E/S.

example, the analyst reports of Morningstar, a leading provider of independent investment research, consistently include valuation inputs such as cost of equity capital estimates that sell-side analysts' reports often exclude. Morningstar touts its "fundamental, bottom-up approach to investment research" that uses a longer time frame, as well as its "reputation for independence and objectivity" (Morningstar 2016a, 2016b). In contrast, non-independent analysts generally focus on *near-term* earnings forecasts and stock recommendations due to the pressures of their investing clients and company management (Brown, Call, Clement, and Sharp 2015). Thus, independent analysts' research may provide important information to investors evaluating firms' value.

The lack of evidence about independent analysts' price targets stems in part from the fact that the contents of independent analysts' research reports are not widely available through conventional data sources. We thus form a unique dataset to evaluate our research questions.[3] From Morningstar, we obtain the fair value estimates (hereafter, price targets) and cost of equity capital (CoEC) estimates contained in its analysts' reports, which we combine with Morningstar LTG and EPS forecasts from I/B/E/S. Our initial "full" sample contains all 18,969 Morningstar price targets from 2011 to 2015 with non-missing CRSP data. An additional common sample includes 1,242 yearly Morningstar analyst price targets with non-missing LTG and EPS forecasts matched to investment-bank analysts' price targets with corresponding LTG and EPS forecasts.

Our analysis is guided by prior literature that seeks to tie price targets to future share price (Bradshaw et al. 2013). Given prior findings on the incentives facing analysts – in

[3] We searched I/B/E/S for the independent research firms identified in prior research (Buslepp, Casey, and Huston 2014), and found that very few of these firms' research analysts provide LTG forecasts to I/B/E/S. We observe that Morningstar analysts rarely deviate from using their LTG and CoEC estimates in their valuation models.

particular, analysts employed by investment banks – we compare independent analysts' price targets as predictors of future price relative to the price targets of those I/B/E/S analysts who are employed by investment banks. Next, we cross-sectionally compare independent analysts' price targets with those of investment-bank analysts to determine whether independent analysts are *also* subject to optimistic bias that has been shown to be associated with recent returns, external financing, and accruals (Abarbanell 1991; Bradshaw, Richardson, and Sloan 2001, 2006). Finally, to better understand independent analysts' price targets, we evaluate their fundamental inputs, i.e., LTG and EPS forecasts, relative to those of investment-bank analysts, and their CoEC estimates relative to those implied from investment-bank analysts' EPS forecasts and price.

We find the following. First, independent analysts predict future price with less optimism than investment-bank analysts. In particular, independent analysts' price targets are met or exceeded 79% of the time, whereas investment-bank analysts' price targets are met or exceeded 70% of the time (over the next 12 months) in our full sample. Second, this difference in bias is particularly pronounced for firms with recent stock price momentum, higher valuations, or greater stock price volatility. Third, in evaluating the fundamental inputs from which independent analysts form their price targets, we find that independent analysts' LTG forecasts predict realized earnings growth with less optimism than do investment-bank analysts' LTG forecasts. Consistent with prior literature on EPS forecasts (Gu and Xue 2008; Jacob et al. 2008), independent analysts' EPS forecasts and, in some specifications, price targets exhibit less accuracy than investment-bank analysts' forecasts, which may reflect their relative lack of resources and/or private information.[4] We find no evidence of a positive correlation between

[4] The accuracy of Morningstar analysts' price targets is statistically lower in the full sample but statistically similar in the common sample.

realized returns and either (1) independent analysts' CoEC estimates or (2) CoEC estimates implied from investment bank analysts' earnings forecasts.

Collectively, our results suggest that independent analysts, who may lack both the resources and many of the incentives facing investment-bank analysts, produce less optimistic price targets, in particular for firms with recent stock price momentum, higher valuation, or greater stock price volatility. Moreover, some of their firm valuation inputs – in particular, long-term growth forecasts – are less optimistic with no corresponding evidence of diminished accuracy relative to investment-bank analysts' estimates. Prior research on financial analysts' outputs typically examines only selected elements from their research reports, such as earnings forecasts, stock recommendations, or price targets—Asquith et al. (2005), which catalogs the contents of All-Star analysts' reports, is an exception.[5] Our study is the first to comprehensively examine independent analysts' price targets in conjunction with their fundamental inputs. Additionally, our research explores how analysts' estimates of firm valuation vary based on the different incentives facing independent versus investment-bank analysts. Accordingly, investors as well as those interested in extending empirical research into firm valuation can benefit from the analysis undertaken in this study.

The study proceeds as follows. Section 2 develops our research questions. Section 3 outlines our sample, and Section 4 presents our empirical tests and results. Section 5 concludes. The appendix contains definitions for all variables used in this study.

[5] A number of studies examine the interplay between analysts' recommendations and earnings forecasts (Bradshaw 2004; Ertimur, Sunder, and Sunder 2007; Brown and Huang 2013; Malmendier and Shanthikumar 2014; Kecskes, Michaely, and Womack 2016), while Bandyopadhyay, Brown, and Richardson (1995) and Da, Hong, and Lee (2016) investigate the relation between EPS forecast revisions and price target revisions. However, we are unaware of a study that examines both analysts' price targets and their fundamental inputs.

2. Research Question Development

Financial analysts' forecasts are widely used by investors and academic researchers as proxies for the market's expectations (Schipper 1991). However, prior research suggests that the incentives sell-side analysts face lead to optimistically biased forecasts and recommendations (Francis and Philbrick 1993; Dugar and Nathan 1995; Lin and McNichols 1998). Around the turn of the century, concerns about analysts' conflicting incentives led to calls for increased availability of independent analyst research and, eventually, the Global Analyst Research Settlement (the Global Settlement). Reached in April 2003, the Global Settlement required the payment of nearly $1.5 billion by 10 large investment banks, including $432.5 million to fund and distribute independent research to their clients over the next five years.

Given the proliferation of independent research since the Global Settlement, various academic studies investigate the quality of independent research. These studies generally conclude that the analysis provided by independent researchers underperforms that of sell-side analysts. For example, research suggests that independent analysts provide less accurate earnings forecasts (Gu and Xue 2008) and less predictive 'Hold' and 'Sell' stock recommendations (Barber et al. 2007) compared to investment bank analysts. In a recent working paper, Buslepp et al. (2014) conclude that independent analysts who were funded by the Global Settlement issue lower quality recommendations than those of non-funded independent research providers and non-independent providers in a 2004 to 2009 sample.[6] Moreover, institutional anecdotes have questioned the quality of research provided by

[6] Morningstar earnings forecasts became available on I/B/E/S in 2010 and are not included in the Buslepp et al. (2014) study.

independent providers.[7] Although free from many of the incentives facing investment-bank analysts, independent analysts may lack the resources, expertise, or access to private information that investment-bank analysts enjoy. For example, Chen and Martin (2011) conclude that analysts whose employers lend to the companies they follow benefit from private information in forming EPS forecasts for those companies.

Despite these criticisms, we know very little about other elements of independent analysts' assessments of firm value. Prior literature evaluates sell-side analysts' price targets as predictors of price. Although these analysts' price targets are value relevant (Brav and Lehavy 2003; Asquith et al. 2005), Bradshaw et al. (2013) show that only 38% are met after a 12-month horizon, with 64% met at some time during the forecast horizon.[8] Gleason et al. (2013) suggest two explanations for why prior research finds analysts' published price targets to be of limited value as investment signals. First, analysts may set their price targets in order to justify their Buy-Sell recommendations. Second, even when analysts derive their price targets using accepted valuation techniques, price target quality can be compromised by inaccurate forecasts or other valuation model inputs. In their study, Gleason et al. (2013) infer valuation model use from the observed correlation between sell-side analysts' price targets and researcher-constructed stock valuation estimates. They find significant improvements in price target performance when analysts are inferred to be using a valuation model rather than a heuristic. This echoes the Bradshaw (2004) finding that DCF models based on analysts' consensus earnings forecasts may provide superior holding returns relative to solely relying on analysts' stock recommendations.[9]

[7] In an interview with one of this study's co-authors, a former managing director with a sanctioned investment bank referred to the funding of independent research required under the Global Settlement as "a waste of money."
[8] Using an earlier, hand-collected sample, Asquith et al. (2005) find that 54% of price targets provided by Institutional Investor (II)-ranked analysts are met at some point during a 12-month horizon.
[9] Analysts' price targets were not considered in Bradshaw (2004) because of data availability limitations at the time.

As discussed above, Morningstar analysts rely heavily on fundamental valuations to form their price targets. In addition, because independent analysts (including Morningstar) face different incentives than investment-bank analysts, they may form less biased and, therefore, incrementally useful price targets. However, independent analysts' lack of resources, expertise, and access to private information may hinder the usefulness of their price targets.[10] Given these potentially conflicting effects, our first research question examines the extent to which independent analysts' price targets predict future price, as follows:

RQ1: How well do independent analysts' price targets predict future stock price relative to investment-bank analysts' price targets?

We next investigate firm characteristics that may be associated with the relative performance of independent and investment-bank analysts' price targets. Optimism in analysts' forecasts and estimates have been associated with factors including recent returns (Abarbanell 1991; Ali, Klein, and Rosenfeld 1992; Elgers and Lo 1994), market-to-book ratio (Frankel and Lee 1998; Doukas, Kim, and Pantzalis 2002), firm size (Easton and Sommers 2007), external financing needs (Bradshaw et al. 2006), and accruals (Bradshaw et al. 2001).[11] Prior literature finds that optimism is associated with these factors for the broad population of sell-side financial analysts. However, it is unclear whether independent analysts are subject to similar biases, particularly given their differing incentives. We thus cross-sectionally compare independent analysts' price targets with those of investment-bank analysts to evaluate our second research question:

RQ2: How does the relative performance of independent analysts' and investment-bank analysts' price targets vary with firm characteristics?

[10] Consistent with this idea, in untabulated analyses we find that on average Morningstar analysts in I/B/E/S during 2015 had less firm-specific and general forecasting experience, lower forecasting frequency, and more firms under coverage than investment bank analysts.

[11] A related branch of literature ties analysts' optimism to incentives including investment banking affiliation (Ljungqvist, Marston, Starks, Wei, and Yan 2007) and trading volumes (Irvine 2000).

Finally, to better understand independent analysts' price targets, we evaluate their fundamental inputs, i.e., LTG and EPS forecasts, relative to those of investment-bank analysts, as well as their CoEC estimates. Fundamental analysis suggests that firm value is a function of forecasted earnings or cash flows, long-term growth, and an assumed discount rate or cost of capital (Wahlen, Baginski, and Bradshaw 2014; McKinsey & Company Inc., Koller, Goedhart, and Wessels 2010). Thus, an estimate of firm value is only as good as the estimates of its underlying components. Accordingly, whereas the literature currently focuses on financial analysts' price targets as predictors of firm value (Bradshaw et al. 2013; Gleason et al. 2013) or uses analysts' earnings forecasts as inputs to help estimate firm value (Frankel and Lee 1998), we attempt to comprehensively evaluate independent analysts' fundamental value estimates by assessing both price targets and their inputs concurrently. Thus, we build on literature that investigates the predictive power of EPS and LTG forecasts (e.g., Dechow et al. 2000; Botosan, Plumlee, and Wen 2011) to compare independent and investment-bank analysts' forecasts.

With respect to LTG forecasts, prior literature generally finds that sell-side analysts' LTG forecasts are optimistically biased, in part due to the incentives facing analysts, and are of limited usefulness for valuation. Dechow et al. (2000) deem analysts' LTG forecasts as "overly optimistic", particularly the LTG forecasts issued by affiliated analysts. Similarly, Chan, Karceski, and Lakonishok (2003) find that I/B/E/S long-term growth forecasts are overly optimistic and are generally poor predictors of future growth, and Bradshaw, Drake, Myers, and Myers (2012) show that a random walk time-series forecast is more accurate than analysts' LTG forecasts for 2- and 3-year ahead earnings. In addition, analysts' LTG forecasts help explain the variation in their stock recommendations and are negatively associated with future excess

returns (see Bradshaw 2004; Barniv, Hope, Myring, and Thomas 2009; La Porta 1996). Liu and Thomas (2000) find that, in explaining the variation in annual returns, analysts' LTG forecast revisions add little to revisions in forecasts of next year's earnings. Reviews by Ramnath et al. (2008a; 2008b) suggest that analysts' LTG forecasts do not provide investors with useful information about firms' long-term earnings prospects. However, Gao and Wu (2014) find some evidence that LTG forecasts reflect analysts' expertise and contain some value-relevant information.

Given evidence in the broader analyst literature that sell-side analysts' recommendations and forecasts generally reflect analysts' incentives to stimulate investment banking business, generate trading commissions, and gain access to managers' private information, it is likely that the subset of investment-bank analysts' LTG forecasts are similarly affected by such biases.[12] Because independent analysts presumably lack these incentives, their LTG forecasts may better predict future firm growth. However, Szakmary, Conover, and Lancaster (2008) document large positive bias in Value Line long-term earnings forecasts. As Value Line is a source of independent analyst research, these findings suggest that optimism in long-term forecasts is not entirely a result of sell-side incentives. Moreover, independent analysts may also have less expertise than investment-bank analysts, and as a result, may be less able to predict future earnings growth.

Prior research provides more clarity on the differences between the EPS estimates of independent analysts and investment-bank analysts, albeit for an earlier time period. Gu and Xue (2008) show that investment-bank analysts forecast earnings more accurately than do

[12] See, for example, Lin and McNichols (1998), Irvine (2000), and Francis and Philbrick (1993). Asquith et al. (2005) note that analysts' favorable outlooks may stem from their concerns over personal compensation, relationships with company management, or underwriting pressures.

independent analysts in a 1989 to 2002 sample. Interestingly, Gu and Xue also find that independent analysts' forecasts better represent ex ante market expectations, relative to the forecasts of non-independent analysts. However, given the regulatory changes (e.g., Regulation Fair Disclosure and The Global Settlement) implemented since the turn-of-the-century, it is important to assess the optimism and accuracy of independent analysts' EPS forecasts during our sample period in order to reconcile our sample with findings from prior literature.

Our third research question broadly investigates whether independent analysts provide fundamental inputs that differ in quality from those provided by investment-bank analysts, as follows:

RQ3: How well do independent analysts' EPS and LTG forecasts predict future earnings and earnings growth, respectively, relative to investment-bank analysts' EPS and LTG forecasts?

In addition to EPS and LTG forecasts, we also investigate CoEC estimates. While we can't easily compare independent analysts' CoEC estimates with investment-bank analysts' CoEC estimates – which are not generally available, let alone observable – we can compare them with CoEC estimates reverse-engineered from investment-bank analysts' forecasts and price, as in prior literature (e.g., Easton 2004).

3. Sample

Independent analysts' estimates of firm value, EPS, long-term growth, and CoEC are not widely available through conventional data sources. Thus, we obtain data from Morningstar analysts' reports. Morningstar, Inc. is a Chicago-based provider of global research covering publicly-traded firms, mutual funds, and other investment offerings, with coverage of 1,500 stocks as of 2015. Founded in 1984, Morningstar began providing independent equity research

in 2004 under the Global Settlement and has since expanded its coverage both in the U.S. and globally. Morningstar focuses on larger, well-covered stocks with a fundamental-value-based approach to firm valuation.[13]

We create two data sets as follows. Morningstar provided us with 34,021 price targets (*PT_IND)* and cost of equity capital estimates (*R_IND*) from their analyst reports between 2011 and 2015[14]. We match the independent analysts' estimates to CRSP to obtain 12-month- ahead price. For our "full sample", we follow Bradshaw et al. (2013) and use all 18,969 independent analysts' price targets. For our "common sample", we follow Gleason et al. (2013) and keep only the first EPS forecast made by an independent analyst after each firm's fourth-quarter earnings announcement for year *t* but before the first quarter earnings announcement for year *t+1* (*EPS_IND*), as well as the corresponding independent analyst's price target (*PT_IND*) and LTG forecast (*LTG_IND*) in I/B/E/S. We also require actual EPS for our analysis of EPS forecasts. This limits our common sample to 2,468 firm-year observations. We then further limit the common sample to those 1,242 firm-years for which we can observe corresponding investment-bank analyst EPS and LTG forecasts, as well as price targets, in I/B/E/S. Panel A of Table 1 provides details of our sample selection process.

Our benchmarks for the independent analysts' firm-value, long-term growth, and EPS estimates are the estimates put forward by analysts employed by investment banks, as these analysts are more likely to face the type of incentives shown to be associated with the performance of analysts' forecasts and recommendations. Specifically, we obtain from I/B/E/S

[13] Morningstar's research was funded by, and provided to the clients of, six of the investment banks sanctioned under the Global Settlement. See http://corporate.morningstar.com/us/documents/MarketingFactSheets/AboutMorningstarFactsheet.pdf

[14] Morningstar provided us with target price data beginning in January 2010 and ending in April 2016. We have omitted the 2010 data because Morningstar earnings and LTG forecasts are not available on I/B/E/S until late 2010. However, in untabulated analyses, we find that our inferences are unchanged when we include the 2010 price target data. The 2016 target prices provided by Morningstar are not included in our study as we do not yet have the realized prices in CRSP.

the most recent price targets, LTG forecasts, and EPS forecasts submitted by analysts employed by investment banks with equity underwriting, debt underwriting, or M&A advising market share rank of 25 or better, as in Corwin, Larocque, and Stegemoller (2017). Given that analysts generally update their EPS forecasts more frequently than their price targets (Bradshaw, Huang, and Tan 2014), and their price targets more frequently than their LTG forecasts, we allow for differences in the timing with which we obtain the most recent analyst LTG forecast or price target. That is, for price targets and LTG forecasts, we obtain the most recent estimates outstanding as of the first quarter announcement date. For EPS forecasts, we find the median of annual EPS forecasts made between the earnings announcement date for the fourth quarter of year t-1 and the first quarter earnings announcement date of year t.

[INSERT TABLE 1 HERE]

Table 1 also provides descriptive statistics (in Panels B and C) and correlations (in Panel D) for the independent analyst estimates used in our study. Panel B presents the full sample, in which the mean (median) value of *PT_IND* is 52.47 (43.00), of *LTG_IND* is 8.47 (9.60), of *EPS_IND* is 3.07 (2.51), and of *R_IND* is 0.10 (0.10). Descriptive statistics in Panel C for the common sample are similar to those in Panel B. Panel D of Table 1 provides the Pearson and Spearman correlations between each of *R_IND*, *LTG_IND*, and *PT_IND* in the common sample, with statistically significant correlations (at the 1% level) shown in bold. As expected, the correlation between *PT_IND* and *R_IND* is significantly negative, and the correlations between *PT_IND* and each of *LTG_IND* and *EPS_IND* are significantly positive.

4. Empirical Tests and Results

This section describes our empirical analysis. In the full sample, we compare all independent analysts' price targets with all investment-bank analysts' price targets within six-month intervals as in Bradshaw et al. (2013). In our common sample analysis, we compare each independent analyst's forecast or estimate with the median of investment-bank analysts' most recent forecasts or estimates made for the same firm at the same time. Therefore, our common-sample analysis effectively controls for differences across firms and across time as it amounts to a matched sample test of two forecasts or estimates for the same firm. At the same time, we are cognizant that the aggregation principle (Brown 1993) works in favor of the investment-bank analysts' forecasts and estimates, to the extent that using an aggregated or consensus of multiple analysts' forecasts results in a reduction of idiosyncratic noise or errors (Philbrick and Ricks 1991; Ramnath, Rock, and Shane 2005). We thus supplement this analysis with a "one-at-a-time" comparison of independent and investment-bank analysts' forecasts.

4.1 Price targets

To empirically test RQ1, we evaluate the performance of independent analysts' price targets. Our benchmark is the performance of investment-bank analysts' price targets, which prior literature suggests are associated with analysts' stock recommendations (Bradshaw 2011) and have some success in predicting future stock price (Bradshaw et al. 2013) – particularly those price targets based on rigorous valuation models (Gleason et al. 2013). We conduct this analysis for both the full sample of 18,969 independent analysts' price targets for which we have non-missing price in the year following formation of the price targets, as well as the

common sample of 1,242 firm-years for which we have both independent analysts' and investment-bank analysts' price targets (i.e., price targets), LTG forecasts, and EPS forecasts.[15]

Like Bradshaw et al. (2014), we evaluate independent analysts' price targets (*PT_IND*) and investment-bank analysts' price targets (*PT_IB*) on both an ex-ante and ex-post basis. Ex ante, we compare independent analysts' and investment-bank analysts' price targets with concurrent price, whereas ex post we compare these price targets with future stock price.

Panel A of Table 2 shows that, after aggregating price targets every six months (Jan – June, July – Dec, etc.) following Bradshaw et al. (2013), mean (median) *PT_IND* in our sample is 52.4 (43.0), and mean (median) *PT_IB* is 67.1 (53.0). This compares with mean (median) price of 52.6 (43.3) when the independent analysts' price targets are issued and of 58.9 (49.4) when the investment-bank analysts' price targets are issued.

[INSERT TABLE 2 HERE]

We use many of the variables from the price target literature measuring price target optimism (*OPT*) and accuracy (*ACCU*) (Gleason et al. 2013; Bradshaw et al. 2013; Bradshaw et al. 2014). These include *PT_OPT1*, an ex-ante measure of optimism, which is the implied return of the independent analyst's or the median investment-bank analyst's price target relative to current price, and is calculated as ($PT/P - 1$), where P is actual price at the time of the price target issuance. Both *PT_OPT2* and *PT_OPT3* are ex-post measures of price target optimism. *PT_OPT2* is the percentage of trading days in the next 12 months that stock prices are below *PT*. *PT_OPT3* is an indicator variable equal to one if the maximum stock price over the next 12 months is below *PT*. As a measure of accuracy, *PT_ACCU* is the reverse-coded absolute price target forecast error, calculated as –1 multiplied by the absolute value of ($P12 - PT)/P$, where

[15] We remove 942 Morningstar price targets from the Full Sample that experience a stock split within 12 months of the Morningstar price target forecast. *PT_IND* and *Price* are truncated at 1% and 99%.

P12 is the stock price from 12 months following the price target release date. In Panel B of Table 2, medians are reported for all measures except for *PT_OPT3*, where we report the mean. *Difference* is calculated as the independent measure less the investment-bank analysts' measure so that higher *Difference* for the optimism measures (*PT_OPT1*, *PT_OPT2*, and *PT_OPT3*) indicates that the independent forecast is more optimistic than the investment-bank analysts' forecast, whereas higher *Difference* for *PT_ACCU* indicates that the independent price target is more accurate than the investment-bank analysts' price target.

On an ex ante basis, we find that for our full sample, implied returns relative to current price (in *PT_OPT1*) are lower for independent analysts' price targets than for investment-bank analysts' price targets in 2011 through 2015 as well as overall, suggesting less optimism from independent analysts. Specifically, from the *PT_OPT1* variable we can see that when price targets are issued, the implied return for independent analysts is 0.008, whereas the implied return for investment-bank analysts is 0.107. This result compares with evidence in the Asquith et al. (2005) 1997 to 1999 sample, in which price targets by All-Star analysts average 133% percent of stock price; the lower price targets in our sample may reflect a more recent time period or that we do not limit the sample to All-Star analysts. Consistent with this interpretation, our ex post analysis of the full sample reveals significantly fewer instances of the independent price target not being reached in the ensuing 12 months (in *PT_OPT2* and *PT_OPT3)* relative to the investment-bank analysts' price target.[16] With respect to price target accuracy, we find that in the full sample, *PT_ACCU* is lower for independent analysts' price targets than for investment-bank analysts' price targets each year from 2012 through 2015, as well as overall.

[16] Given that independent analysts' fundamental value estimates are generally lower than investment-bank analysts' price targets (as shown in Panel A of Table 2), we are mindful of Gleason et al.'s (2013, 84) commentary: "the probability of a stock attaining the price target is inversely related to the level of optimism exhibited by the analyst, as measured by the projected stock price change at publication of the research report."

While much of our analysis is limited to those firms for which we can observe corresponding investment-bank analyst estimates in I/B/E/S, in additional analyses, we also consider the price targets made for firms covered only by independent analysts or only by investment-bank analysts. Panel C of Table 2 presents the price target optimism and accuracy measures for each of the following groups: all firms covered by independent analysts in our sample (column 1); firms covered by independent but not investment-bank analysts (column 2); firms covered by both independent and investment-bank analysts (columns 3 and 4); and firms covered by investment-bank but not independent analysts (column 5). In general, we observe similar levels of optimism and accuracy by independent analysts, for both the firms covered by independent but not investment-bank analysts and the firms covered by both independent and investment-bank analysts.

[INSERT TABLE 3 HERE]

Results for the common sample in Table 3 are generally similar to those for the full sample, with both lower ex ante optimism (i.e., *PT_OPT1*) and lower ex post optimism (i.e., *PT_OPT2* and *PT_OPT3*) for independent analysts. However, there is no significant difference in price target accuracy (*PT_ACCU*) for the common sample. Taken together with the results for the full sample, our findings suggest that independent analysts' value estimates predict future stock price with less optimism than do investment-bank analysts' price targets, consistent with independent analysts facing different incentives than investment-bank analysts. Our results also suggest that, in some cases, independent analysts predict future stock price with less accuracy than do investment-bank analysts. However, given that differences in accuracy are only significant in the full sample, we cannot distinguish whether this result is driven by differences in the types of firms covered by each analyst group or by differences in price target

accuracy per se. Our ensuing tests use the common sample to evaluate research questions two and three.

4.2 Cross-sectional analysis of independent and investment-bank analysts' price targets

We now evaluate cross-sectional differences in the optimism of independent analysts' and investment-bank analysts' price targets. In this analysis, our variable of interest is the difference in optimism between the independent analyst and the investment-bank analysts. Specifically, we calculate the difference between *PT_OPT1* for the independent analyst and *PT_OPT1* for the median investment-bank analyst, and between *PT_OPT2* for the independent analyst and *PT_OPT2* for the median investment-bank analyst. For *PT_OPT3*, we calculate the difference between *PT_OPT3* for the independent analyst and for the mean investment-bank analyst. We regress these difference variables on recent returns, market-to-book, firm size, accruals, and external financing needs following prior literature that associates optimistic bias in analysts' forecasts and estimates with these factors, as in the following equation:

$$Difference_{it} = \alpha_0 + \alpha_1 \Delta XFIN_{it} + \alpha_2 logMV_{it} + \alpha_3 MTB_{it} + \alpha_4 TAcc_{it} + \alpha_5 BHR_{it} + \alpha_6 STD\_RET_{it} + \alpha_7 NANALYST_{it} + \epsilon_{it} \quad (1)$$

In equation (1), $\Delta XFIN$ is a measure of changes in the firm's external (i.e., equity and debt) financing based on the statement of cash flows, as in Bradshaw et al. (2006). *MV* is the market value of equity; *MTB* is the market to book ratio; and *TAcc* is total accruals. *BHR* is the recent buy-and-hold return, and *STD_RET* is the standard deviation of returns for the firm over the six months prior to the measurement of price target optimism and accuracy, while *NANALYST* is the logarithm of the number of I/B/E/S analysts issuing price targets in the prior twelve months.

Table 4 presents our findings. Panels A, B, and C respectively present the results for the *PT_OPT1*, *PT_OPT2*, and *PT_OPT3* optimism measures while Panel D presents the results for the *PT_ACCU* accuracy measure. Across the three optimism measures, we find consistent evidence of a negative relation between the difference in optimism between independent and investment-bank analysts and recent returns (*BHR*). In other words, independent analysts' price target optimism is relatively lower for firms whose stock prices have recently performed well.[17] We also find consistent evidence across the three optimism measures that independent analysts' price target optimism is relatively lower for firms with higher valuations (*MTB*). For two of the optimism measures, *PT_OPT1* and *PT_OPT2*, we find that independent analysts' price target optimism is relatively higher for firms with greater stock price volatility (*STD_RET*). At the same time, Panel D shows a positive and significant relation between independent analysts' relative price target accuracy (i.e., the difference in *PT_ACCU* across independent and investment-bank analysts) and both firms' valuations (*MTB*) and analyst following (*NANALYST*). From this analysis we conclude that, in response to RQ2, independent analysts (1) provide price targets that are even less optimistic than those of investment-bank analysts for firms with higher recent returns, higher valuations, and lower return volatility, and (2) improve their relative price target accuracy for firms with higher valuations and higher analyst following.

[INSERT TABLE 4 HERE]

4.3 EPS and LTG forecasts

EPS

In order to investigate the factors contributing to differences in price targets for independent vs. investment-bank analysts, we first analyze independent analysts' EPS forecasts

[17] In additional, untabulated analyses we find that this association with recent returns is significantly stronger for firms with negative recent returns.

as part of RQ3. Although prior research suggests that investment-bank analysts forecast earnings more accurately than do independent analysts in a 1989 to 2002 sample, it is important to assess the optimism and accuracy of independent analysts' EPS forecasts during our sample period in order to reconcile our sample with findings from prior literature.

For this analysis, we calculate both EPS forecast optimism and forecast accuracy for each of the independent analyst and the median investment-bank analyst following the same firm-year in the common sample. EPS optimism (*EPS_OPT*) equals (Forecast – Actual)/Price, the signed EPS forecast error, and is increasing in optimism relative to actual realized earnings, while EPS accuracy (*EPS_ACCU)* equals -|*EPS_OPT*|, the reverse-coded unsigned EPS forecast error, and thus is increasing in accuracy relative to realized earnings.[18] We also evaluate *Difference*, which is the independent analyst's forecast optimism or accuracy less the median investment-bank analyst forecast optimism or accuracy. Positive *Difference* for *EPS_OPT* indicates greater optimism for the independent analyst's forecast relative to the median investment-bank analyst forecast, whereas positive *Difference* for *EPS_ACCU* indicates the independent forecast is more accurate than the median investment-bank analyst forecast.

[INSERT TABLE 5 HERE]

Table 5 shows no statistical difference in *EPS_OPT* between independent analysts' EPS forecasts and investment-bank analysts' EPS forecasts. However, independent analysts appear to forecast EPS less accurately than do investment-bank analysts. Mean (median) *EPS_ACCU* for independent analysts is -0.016 (-0.004) and for the median investment-bank analyst is -0.012 (-0.003); this difference in accuracy is significant ($p < 0.01$). Thus, our results echo the Gu and Xue (2008) conclusion that independent analysts' EPS forecasts are less accurate.

[18] Inferences are similar using unscaled EPS forecast errors.

LTG

We next evaluate independent analysts' long-term growth forecasts. We evaluate long-term growth forecasts relative to realized EPS growth across varying horizons in RQ3, similar to (Dechow et al. 2000). We compare independent analysts' LTG forecasts (*LTG_IND*) in our common sample with the median of LTG forecasts made by investment-bank analysts (*LTG_IB*) following the same firm in the same year. Following Dechow and Sloan (1997), we calculate actual growth ($GROWTH_{it-T}$) by fitting a least-squares growth line through the logarithm of the four, five, or six annual actual earnings observations in I/B/E/S from year *t* (the year in which the LTG forecasts are published) through year *T*, where $T = 3$ or 4 or 5. In other words, we compare independent analysts' LTG forecasts and concurrent investment-bank analysts' LTG forecasts with realized EPS growth for the ensuing 3, 4, and 5 years.[19] If I/B/E/S actual earnings per share are missing or negative for year t or year 3 (or 4 or 5), then a 3-year (or 4- or 5-year) growth rate is not calculated for that observation.

Focusing on the 383 independent analysts' LTG forecasts in the common sample for which 3-year EPS growth can be calculated, Panel A of Table 6 shows that independent analysts' LTG forecasts have a mean (median) value of 8.81% (9.60%). This compares with a mean (median) value of 12.44% (12.00%) for the median investment-bank analysts' LTG forecasts. Mean (median) 3-year realized EPS growth is 5.23% (5.90%) across our sample. Comparisons are similar for both the 4- and 5-year realized EPS growth horizon.

[INSERT TABLE 6 HERE]

[19] For 3-year growth, we fit a least squares growth line through the logarithm of the four annual earnings observations from year *t* through year *t + 3*. For 4-year (5-year) growth, we fit a least squares growth line through the logarithm of the five (six) annual earnings observations from year *t* through year *t + 4* (*t+5*).

Both the independent and investment-bank analysts' LTG forecasts are positively correlated (at the 1% level) with realized long-term EPS growth using Pearson correlation coefficients. As shown in Panel B of Table 6, the Pearson correlation between *LTG_IND* and $GROWTH_{it-3}$, is 0.24 and the Pearson correlation between *LTG_IB* and $GROWTH_{it-3}$ is 0.27. The Spearman correlation coefficients are not significantly different from zero at the 1% level, but they are positive and significant at the 5% level.

We next turn to LTG forecast errors for independent and investment-bank analysts. As above, *LTG_OPT* equals (Forecast – Actual), or the signed forecast error, and *LTG_ACCU* equals -|*LTG_OPT*|, or the reverse-coded absolute forecast error. *Difference* is the independent analyst's LTG forecast error less investment-bank analysts' forecast error; positive *Difference* for *LTG_OPT* indicates higher optimism for the independent analyst's forecast relative to the median investment-bank analyst forecast, whereas positive *Difference* for *LTG_ACCU* indicates the independent analyst's forecast is more accurate than the median investment-bank analyst forecast.

Panels C and D of Table 6 respectively show mean and median accuracy (*LTG_ACCU*) and optimism (*LTG_OPT*) for independent and investment-bank analysts relative to realized EPS growth for the 3, 4, and 5 years following the date of LTG forecasts. Focusing on the 3-year horizon, analysis of *LTG_OPT* shows that independent analysts' LTG forecasts are significantly less optimistic than the median investment-bank analyst's LTG forecasts based on both mean and medians, whereas the accuracy (*LTG_ACCU*) of independent analysts' LTG forecasts is not significantly different from that of investment bank analysts' forecasts. At the 4-year horizon, independent analysts' LTG forecasts are significantly less optimistic based on both means and medians, and significantly less (more) accurate based on means (medians). At

the 5-year horizon, independent analysts' LTG forecast optimism is significantly lower based on medians. Panel E provides yearly analysis of long-term growth forecasts for 2011 through 2013. Overall, our results suggest that independent analysts' LTG forecasts are less optimistic than LTG forecasts provided by investment-bank analysts.

4.4 Cost of equity capital estimates

We know little about analysts' CoEC estimates, and in particular about *independent* analysts' CoEC estimates. Given the novelty of our dataset of analysts' CoEC estimates, as well as the extensive literature on expected returns, we follow prior research to examine the characteristics of independent analysts' CoEC estimates (*R_IND*). To benchmark these CoEC estimates, we also examine the implied CoEC proxies put forward by Claus and Thomas (2001), Gebhardt, Lee, and Swaminathan (2001), and Easton (2004), as well as Bloomberg's quarterly CoEC estimates (*R_BLOOM*), which are based on the CAPM.[20] For each independent analyst's CoEC estimate, we reverse-engineer for the same firm the CoEC estimate formed from the corresponding median investment-bank analyst's earnings forecast and price. *R_CT* is formed as in Claus and Thomas (2001), *R_GLS* as in Gebhardt et al. (2001), and *R_PEG* as in Easton (2004). See the Appendix for more details on the calculation of these implied CoEC estimates.

Guided by the extensive prior literature on the CoEC, we assess these estimates relative to ex post realized returns.[21] Panel A of Table 7 presents descriptive statistics for the variables used in this analysis. The values of the CoEC estimates are similar in size, except for *R_GLS* and *R_PEG* which have higher mean values, and *R_CT* which has a lower median value than

[20] Bloomberg states that its CoEC estimates are equal to the risk-free rate plus Beta times the country-level risk premium. Discussions with research management at brokerage firms that do not require the calculation and subsequent reporting of CoEC estimates in their analysts' reports suggest that analysts often rely on Bloomberg's CoEC estimates.

[21] In untabulated analysis, we evaluate Morningstar's CoEC estimates relative to risk factor proxies, as in Botosan and Plumlee (2005). We find that *R_IND* is positively associated with unlevered beta, earnings volatility, and idiosyncratic risk and negatively associated with size.

the other CoEC estimates. However, the implied CoEC estimates exhibit far more variation than do the independent analysts' CoEC estimates.[22]

To analyze independent analysts' CoEC estimates, we follow Easton and Monahan (2005) and Guay, Kothari, and Shu (2011), regressing buy-and-hold returns on the analyst's firm-specific CoEC estimate, as in the following equation:

$$RET_{it+1} = \alpha_0 + \alpha_1 CoEC_{it} + \epsilon_{it} \quad (2)$$

In the above equation, RET_{it+1} is the stock return for the 12 months following the date of the independent analyst's CoEC estimate. If the CoEC estimate forms a good proxy for expected returns, then the α_1 coefficient in Equation (2) will be positive.

Panel B of Table 7 provides the Fama-MacBeth results of estimating Equation 2 for the common sample. Prior literature has struggled to obtain reliable evidence of a correlation between average realized returns and expected returns estimates (e.g., Guay et al. 2011). In the same vein, we do not find a positive association between future realized returns and analysts' CoEC estimates. Specifically, the Fama-MacBeth coefficient on *R_IND* is -2.606, and the coefficient is statistically different from zero. At the same time, we also do not find evidence of a significant positive relation between future realized returns and each of the three implied CoEC estimates, nor for *R_BLOOM*.

[INSERT TABLE 7 HERE]

4.5 Individual comparisons of independent and investment-bank analysts

[22] In untabulated analysis, we find that independent analysts' CoEC estimates are positively correlated with both the implied CoEC estimates and the Bloomberg CoEC estimates, although the maximum correlation of 0.43 (with *R_BLOOM*) suggests a high degree of unique variation within the independent analysts' CoEC estimates relative to the other estimates.

Whereas our previous analysis compares the independent analyst's estimate to a consensus (i.e., a median) of investment-bank analysts' estimates, in Table 8 we compare independent analysts' estimates with each individual investment-bank analyst's estimates in the common sample. For each firm-year, we compare the optimism and accuracy of the independent analyst forecast relative to each individual investment-bank analyst, and then we calculate the percentage of times the independent analyst forecast is more/less optimistic and more/less accurate than each investment-bank analyst's forecast for that firm at the same point in time. For price targets, Panel A of Table 8 shows that independent analysts provide less optimistic price targets than the investment-bank analysts across all three measures of optimism. Independent analysts are less (more) optimistic than 72% (28%) of the individual investment-bank analysts for *PT_OPT1*, less (more) optimistic than 69% (23%) for *PT_OPT2*, and less (more) optimistic than 26% (12%) for *PT_OPT3*. Panel B shows that independent analysts provide more (less) accurate price targets than 41% (59%) of the individual investment-bank analysts. For EPS forecasts, Panel A shows independent analysts are more (less) optimistic than 50% (48%) of investment-bank analysts and Panel B shows that independent analysts are more (less) accurate than 38% (58%) of the individual investment-bank analysts. For LTG forecasts, independent analysts are more (less) optimistic than 35% (64%) of investment-bank analysts' forecasts and are more (less) accurate than 54% (45%) of the individual investment-bank analysts' forecasts. Overall, this "one-at-a-time" analysis is consistent with the results reported in the prior analyses.

[INSERT TABLE 8 HERE]

5. Conclusion

This study provides new evidence regarding the usefulness of independent analyst research for firm valuation in the post-Global Settlement period. Using a unique dataset containing independent analysts' price targets from 2011 to 2015, we examine the association of independent analysts' price targets with future price, as well as the optimism and accuracy of their price targets relative to investment-bank analysts' price targets across firm types. We also examine the optimism and accuracy of independent analysts' long-term growth forecasts, EPS forecasts, and cost of equity capital estimates, i.e., the fundamental inputs to their price targets.

Consistent with the motivation behind the Global Settlement, independent analysts appear to predict firm value with less optimism than do investment-bank analysts, particularly for firms with recent stock price momentum, higher valuations, and greater stock price volatility. Independent analysts' less optimistic price targets appear to stem from their less optimistic long-term growth forecasts. At the same time, the lower accuracy of independent analysts' EPS forecasts and, in some specifications, price targets may reflect their relative lack of resources and/or private information.

In addition to validating the more valuation-driven analysis of independent analysts, our results also inform the broad literatures that use estimates of expected firm value, EPS, and LTG to test other relationships in the accounting and finance domains. Our paper suggests alternative proxies for price targets and LTG estimates that are less optimistically biased than more commonly used proxies. Collectively, our results suggest that independent analysts' fundamentally-driven firm value estimates help predict price.

APPENDIX

Variable Definitions

Variable	Definition
BHR	Buy and hold returns over the six months preceding the six months for which we average price target performance
EPS_ACCU	-|EPS Forecast – Actual|/Price
EPS_IB	EPS forecast for the upcoming fiscal year, formed from the median of the most recent EPS forecast in I/B/E/S for each investment-bank analyst following the firm, for forecasts issued between the earnings announcement date (*RDQ*) for quarter 4 of year t-1 and the earnings announcement date (*RDQ*) for quarter 1 of year t.
EPS_IND	EPS forecast for the upcoming fiscal year issued by the independent analyst between the earnings announcement date (*RDQ*) for quarter 4 of year t-1 and the earnings announcement date for quarter 1 of year t, collected from I/B/E/S
EPS_OPT	(EPS Forecast – Actual)/Price
$GROWTH_{it-T}$	Calculated following Dechow and Sloan (1997) by fitting a least-squares growth line through the logarithm of the four or five or six annual actual earnings observations in I/B/E/S from year *t*, the year in which the price target is issued, through year *T*, where $T = 3$ or 4 or 5
LTG_ACCU	-|LTG Forecast – Actual|
LTG_IB	Long-term growth forecast formed from the median of the most recent LTG forecast in I/B/E/S for each investment-bank analyst following the firm, that is outstanding as of the first quarter earnings announcement date (*RDQ*) for year *t*
LTG_IND	The independent analyst's long-term growth estimate from I/B/E/S that is outstanding as of the first quarter earnings announcement date (*RDQ*) for year *t*
LTG_OPT	(LTG Forecast – Actual)

Variable	Definition
MTB	MV divided by CEQQ from the last fiscal quarter prior to the six months for which we average price target performance
MV	Market value of equity calculated as the absolute value of prc × shrout as of the quarter-end prior to the six months for which we average price target performance, retrieved from CRSP
NANALYST	Logarithm of the number of analysts issuing price targets in the twelve months prior to the six months for which we average price target performance
Price	Stock price at the time of the price target issuance, retrieved from the CRSP daily stock file
PT_ACCU	Price target accuracy, calculated as –1 multiplied times the absolute value of (P12 – PT)/P, where P12 is the stock price from 12 months following the price target release date
PT_IB	Median price target formed from the outstanding price targets in I/B/E/S for investment-bank analysts following the firm
PT_IND	The independent analyst's price target, proxied for with the 'Fair Value' estimate from Morningstar. *PT_IND* is truncated at the 1% and 99% levels in the Full Sample.
PT_OPT1	Price target optimism, measured as the implied return of the independent analyst's or investment-bank analysts' price target relative to current price, calculated as (PT/P – 1), where P is actual price at the time of the price target issuance
PT_OPT2	Price target optimism, measured as the percentage of trading days in the next 12 months that stock prices are below PT
PT_OPT3	Price target optimism, measured as an indicator variable equal to one if the maximum stock price over the next 12 months is below PT
R_BLOOM	Firm-specific cost of equity estimate collected from Bloomberg Professional, from the calendar quarter that includes the date of the independent analyst's cost of equity capital estimate

Variable	Definition
R_CT	Implied cost of equity capital estimate derived according to Claus and Thomas (2001), as follows: $$P_t = B_t + \sum_{j=1}^{5} \frac{E_t[X_{t+j} - R_{CT} * B_{t+j-1}]}{(1+rCT)^j} + \frac{(1+g)E_t[X_{t+5} - R\_CT * B_{t+4}]}{(1+R_{CT})^5 (R\_CT - g)}$$
R_GLS	Implied cost of equity capital estimate derived according to Gebhardt et al. (2001), as follows: $$P_t = B_t + \sum_{j=1}^{11} \frac{E_t[X_{t+j} - R\_GLS * B_{t+j-1}]}{(1 + R\_GLS)^j} + \frac{E_t[X_{t+12} - R\_GLS * B_{t+11}]}{(1 + R\_GLS)^{11} R\_GLS}$$
R_IND	The independent analyst's most recent firm-specific cost of equity capital estimate issued between the earnings announcement dates (*RDQ*) for the fourth quarter of year *t-1* and for the first quarter of year *t*
R_PEG	Implied cost of equity capital estimate derived according to the Easton (2004) "PEG" model, as follows: $$R\_PEG = \sqrt{\frac{(E_t[X_{t+2}] - E_t[X_{t+1}])}{P_t}}$$
RET_{t+1}	Stock return for the 12 months following the date of the analyst's price target, obtained from CRSP
STD_RET	Standard deviation of returns over the six months prior to the six months for which we average price target performance
TAcc	(IBC - OANCF)/SALE measured at the fiscal year end prior to the six months for which we average price target performance

Variable	Definition
UBeta	Beta, estimated using daily returns of the firm and the S&P 500 index over the year prior to the date of the CoEC estimate from the regression $R_{it} = \alpha_i + \beta_i \times R_{mt} + e_{it}$. A minimum of 50 daily return observations is required. If leverage = 0 then *UBeta* = Beta; otherwise *UBeta* = Beta/(1 + leverage), where leverage is measured as (*DLCQ* + *DLTTQ*)/*CEQQ* from Compustat.
Δ*XFIN*	Δ*Equity* + Δ*Debt* where Δ*Equity* = (SSTK - PRSTKC - DV)/AVG_AT and Δ*Debt* = (DLTIS - DLTR - DLCCH)/AVG_AT, as in Bradshaw, Richardson, and Sloan (2006). Measured over the fiscal year overlapping the six months for which we average price target performance.

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TABLE 1

Sample selection and descriptive statistics

This table presents details of our sample selection as well as descriptive statistics for the period 2011 to 2015. Panel A describes our sample selection procedure and Panel B provides descriptive statistics for the full sample of 18,969 independent analysts' price targets with non-missing CRSP prices and without stock splits over the following 12 months. Panel C provides descriptive statistics for the common sample of 1,242 yearly independent analysts' price targets, LTG forecasts, and EPS forecasts, for which there are non-missing investment-bank analyst price targets, LTG forecasts, and EPS forecasts. Panel D reports Pearson (Spearman) correlation coefficients for the common sample below (above) the diagonal, with correlations that are significant at the 1% level shown in bold. Variable descriptions are in the Appendix.

Panel A: Sample selection

Number of firm-value and CoEC estimates provided by Morningstar for 2011 to 2015	34,021
Number of Morningstar price targets with non-missing 12-month ahead CRSP price, without stock splits and after truncating *PT_IND* and price at 1% and 99% ("*Full sample*")	18,969
Number of observations after merging with Compustat and I/B/E/S	18,032
Number of observations with non-missing Morningstar *EPS1* and *LTG* forecasts in I/B/E/S	15,474
Number of observations after restricting to the first EPS forecast between the 4th quarter earnings announcement date for year *t* and the first quarter earnings announcement date for year *t+1*	2,468
Number of observations with non-missing investment-bank forecasts available for price targets, LTG forecasts, and EPS forecasts ("*Common sample*")	1,242

Panel B: **Descriptive statistics – full sample**

	Number of analyst estimates	**Mean**	**Std Dev**	**Min**	**25%**	**Median**	**75%**	**Max**
PT_IND	18,969	52.47	42.66	2.00	25.65	43.00	66.58	513.70
LTG_IND	16,822	8.47	33.91	-407.80	5.20	9.60	14.80	277.90
EPS_IND	15,948	3.07	4.10	-188.45	1.42	2.51	4.12	71.28
R_IND	18,969	0.10	0.01	0.08	0.10	0.10	0.11	0.20

TABLE 1 (continued)

Panel C: **Descriptive statistics – common sample**

	Number of analyst estimates	Mean	Std Dev	Min	25%	Median	75%	Max
PT_IND	1,242	58.84	38.92	2.55	33.00	50.00	74.00	300.00
LTG_IND	1,242	8.86	36.78	-372.10	5.50	9.70	14.90	254.60
EPS_IND	1,242	3.34	2.47	-3.03	1.68	2.89	4.45	16.75
R_IND	1,242	0.10	0.01	0.08	0.10	0.10	0.11	0.15

Panel D: Correlations – common sample

	PT_IND	***LTG_IND***	***EPS_IND***	***R_IND***
PT_IND		**0.07**	**0.76**	**-0.29**
LTG_IND	**0.08**		**-0.11**	**0.09**
EPS_IND	**0.75**	**0.08**		**-0.18**
R_IND	**-0.24**	**-0.08**	**-0.14**	

TABLE 2
Analysis of price targets in full sample

This table assesses independent analysts' price targets (*PT_IND*) and investment-bank analysts' price targets (*PT_IB*) for our full sample of firms with non-missing CRSP prices and without stock splits over the following 12 months. For each firm, we take the average of *PT_OPT1*, *PT_OPT2*, *PT_OPT3*, and *PT_ACCU* every six months (Jan – June, July – Dec, etc.) following Bradshaw et al. (2013).

Panel A presents descriptive statistics for each of *PT_IND* and *PT_IB*, as well as price at the time of the independent or investment-bank price target. Panel B provides price target optimism and accuracy measures, following prior literature. *PT_OPT1* is the implied return of the price target relative to current price, computed as ($PT/P - 1$). *PT_OPT2* is the percentage of trading days in the next 12 months that stock prices are less than the price target. *PT_OPT3* is an indicator variable equal to one if the maximum stock price over the next 12 months is smaller than the price target. *PT_ACCU* is the absolute price target forecast error, calculated as $-|(P12 - PT)/P|$. *Difference* is calculated as the independent measure less the investment-bank analysts' measure; positive *Difference* for *PT_OPT* indicates greater optimism for the independent price target relative to the median investment-bank analyst price target while positive *Difference* for *PT_ACCU* indicates greater accuracy for the independent analyst price target. In Panel B, medians are reported for all measures except for the *PT_OPT3* indicator variable, where we report the mean.

Panel C presents analysis similar to that in Panel B for each of the following samples: all independent analysts' price targets in the full sample (column 1); those firms covered by independent analysts but not covered by investment-bank analysts (column 2); those firms covered by both independent and investment-bank analysts (columns 3 and 4); and those firms covered by investment-bank analysts but not covered by independent analysts (column 5).

*, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. Variable descriptions are in the Appendix.

Panel A: Ex ante independent analyst and median investment-bank analyst price targets, and actual price at the time the price target is issued

	Number of analyst-firm periods	Mean	Std Dev	Min	25%	Median	75%	Max
PT_IND	6,588	52.4	40.5	2.0	26.2	43.0	66.9	416.4
Price	6,588	52.6	40.2	3.4	26.0	43.3	67.7	315.7
PT_IB	38,248	67.1	77.3	0.5	33.0	53.0	81.5	1,715.0
Price	38,248	58.9	44.0	1.7	30.4	49.4	75.0	445.1

TABLE 2 (continued)

Panel B: Price target optimism and accuracy measures

		Number of analyst-firm periods	PT_OPT1		PT_OPT2		PT_OPT3		PT_ACCU	
	PT_IND		0.046		0.692		0.297		-0.224	
2011	*PT_IB*	1,398	0.125		0.797		0.377		-0.214	
	Difference		-0.059	***	-0.008	***	-0.080	***	0.007	
	PT_IND		0.060		0.415		0.213		-0.275	
2012	*PT_IB*	1,311	0.116		0.581		0.225		-0.210	
	Difference		-0.038	***	-0.057	***	-0.012		-0.033	***
	PT_IND		-0.027		0.123		0.110		-0.242	
2013	*PT_IB*	1,298	0.087		0.496		0.185		-0.183	
	Difference		-0.104	***	-0.210	***	-0.074	***	-0.048	***
	PT_IND		-0.038		0.203		0.154		-0.237	
2014	*PT_IB*	1,293	0.102		0.700		0.299		-0.189	
	Difference		-0.136	***	-0.276	***	-0.145	***	-0.030	***
	PT_IND		0.014		0.630		0.260		-0.204	
2015	*PT_IB*	1,288	0.109		0.853		0.427		-0.209	
	Difference		-0.098	***	-0.142	***	-0.167	***	0.015	
	PT_IND		0.008		0.405		0.208		-0.235	
All Years	*PT_IB*	6,588	0.107		0.697		0.303		-0.202	
	Difference		-0.090	***	-0.150	***	-0.095	***	-0.016	***

TABLE 2 (continued)

Panel C: Price target optimism and accuracy measures across varying samples of firms

	All firms covered by independent	Firms covered by independent but not IB	Firms covered by independent and IB		Firms covered by IB but not independent
	1	**2**	**3**	**4**	**5**
	PT_IND	**PT_IND**	**PT_IND**	**PT_IB**	**PT_IB**
# of analyst-firm pairings	7,521	933	6,588	38,248	21,612
PT_OPT1	0.011	0.026	0.008	0.107	0.147
PT_OPT2	0.427	0.610	0.405	0.697	0.787
PT_OPT3	0.217	0.277	0.208	0.303	0.167
PT_ACCU	-0.237	-0.249	-0.235	-0.202	-0.276

TABLE 3
Analysis of price targets in common sample

This table assesses independent price targets and investment-bank analysts' price targets for our common sample of 1,242 independent price targets, LTG forecasts, and EPS forecasts, for which there are non-missing investment-bank analyst price targets, LTG forecasts, and EPS forecasts.

Panel A presents descriptive statistics for each of *PT_IND* and *PT_IB*, as well as price at the time of the independent or investment-bank price target. Panel B provides various price target optimism and accuracy measures, following prior literature. *PT_OPT1* is the implied return of the price target relative to current price, computed as ($PT/P - 1$). *PT_OPT2* is the percentage of trading days in the next 12 months that stock prices are less than *PT*. *PT_OPT3* is an indicator variable equal to one if the maximum stock price over the next 12 months is smaller than *PT*. *PT_ACCU* is the absolute price target forecast error, calculated as $-|(P12 - PT)/P|$. *Difference* is calculated as the independent measure less the investment-bank analysts' measure; positive *Difference* for *PT_OPT* indicates greater optimism for the independent price target relative to the median investment-bank analyst price target while positive *Difference* for *PT_ACCU* indicates greater accuracy for the independent analyst price target.

In Panel B, medians are reported for all measures except for the *PT_OPT3* indicator variable, where we report the mean. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. Variable descriptions are in the Appendix.

Panel A: Ex ante price targets and actual prices

	N	Mean	Std Dev	Min	25%	Median	75%	Max
PT_IND	1,242	58.8	38.9	2.5	33.0	50.0	74.0	300.0
PT_IB	1,242	62.9	48.4	5.0	35.0	52.0	79.0	848.9
Price	1,242	58.9	40.2	3.4	32.6	49.9	74.5	314.2

TABLE 3 (continued)

Panel B: Price target optimism and accuracy measures

		N	PT_OPT1		PT_OPT2		PT_OPT3		PT_ACCU	
	PT_IND		0.014		0.633		0.255		-0.173	
2011	*PT_IB*	184	0.063		0.807		0.321		-0.167	
	Difference		-0.025		0.000	***	-0.065		0.006	
	PT_IND		0.079		0.756		0.281		-0.225	
2012	*PT_IB*	242	0.100		0.837		0.322		-0.202	
	Difference		0.003		0.000	***	-0.041		-0.008	
	PT_IND		0.005		0.185		0.130		-0.213	
2013	*PT_IB*	247	0.063		0.443		0.166		-0.211	
	Difference		-0.043	***	-0.046	***	-0.036		-0.027	*
	PT_IND		-0.026		0.209		0.123		-0.181	
2014	*PT_IB*	235	0.091		0.702		0.234		-0.151	
	Difference		-0.101	***	-0.225	***	-0.111	***	-0.021	*
	PT_IND		-0.009		0.550		0.246		-0.190	
2015	*PT_IB*	334	0.098		0.957		0.383		-0.217	
	Difference		-0.098	***	-0.232	***	-0.138	***	0.020	
	PT_IND		0.006		0.433		0.208		-0.197	
All Years	*PT_IB*	1,242	0.087		0.806		0.291		-0.194	
	Difference		-0.068	***	-0.067	***	-0.083	***	-0.002	

TABLE 4
Cross-sectional differences in independent and investment-bank analysts' price targets

This table assesses cross-sectional variation in the difference in optimism and accuracy for the price targets formed by independent analysts and investment-bank analysts. Panel A presents results for *PT_OPT1*, which measures ex ante optimism. Panel B presents results for *PT_OPT2*, which measures ex post optimism based on the percentage of trading days in the next 12 months that stock prices are below PT. Panel C presents results for *PT_OPT3*, which measures ex post optimism based on an indicator variable equal to one if the maximum stock price over the next 12 months is below PT. Panel D presents results for *PT_ACCU*, which measures ex post price target accuracy. In all of these panels, the 'difference' column is calculated by subtracting the investment-bank analyst measure from the independent analyst measure. Thus, positive *Difference* for optimism measures indicates greater optimism for the independent price target relative to the median investment-bank analyst price target, whereas positive *Difference* for accuracy measures indicates greater accuracy for the independent analyst price target.

Following prior literature that associates optimistic bias in analysts' forecasts with several firm-specific factors, we regress the difference variables on external financing needs, firm size, market-to-book, accruals, recent returns, the standard deviation of returns, and analyst following. The sample is based on our common sample of independent price targets, LTG forecasts, and EPS forecasts, for which there are non-missing investment-bank analyst price targets, LTG forecasts, and EPS forecasts, and is further limited to those firms for which we have non-missing values of the independent variables in the regression equation below:

$$Difference_{it} = \alpha_0 + \alpha_1 \Delta XFIN_{it} + \alpha_2 logMV_{it} + \alpha_3 MTB_{it} + \alpha_4 TAcc_{it} + \alpha_5 BHR_{it}$$
$$+\alpha_6 STD_{RET\,it} + \alpha_7 NANALYST_{it} + \epsilon_{it}$$

*, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. Variable descriptions are in the Appendix.

TABLE 4 (continued)

Panel A: Optimism (*PT_OPT1*)

	Difference in PT_OPT1		*PT_OPT1_IND*		*PT_OPT1_IB*	
	(1)		(2)		(3)	
Intercept	-0.221	***	-0.157	***	0.053	
	(-2.98)		(-2.62)		(0.98)	
Δ*XFIN*	-0.138	*	-0.070		0.049	
	(-1.74)		(-0.68)		(0.50)	
log(*MV)*	0.013		0.008		-0.005	
	(1.58)		(0.71)		(-0.55)	
MTB	-0.008	***	-0.007	***	0.001	
	(-3.10)		(-3.07)		(0.26)	
TAcc	0.052		-0.069		-0.121	
	(0.54)		(-0.82)		(-1.62)	
BHR	-0.284	***	-0.326	***	-0.042	*
	(-12.89)		(-13.40)		(-1.82)	
STD_RET	0.679	***	1.012	***	0.343	*
	(3.18)		(5.25)		(1.72)	
NANALYST	0.013		0.035		0.024	
	(0.60)		(1.08)		(0.83)	
N	4,507		4,507		4,507	
Adjusted R^2	0.033		0.066		0.007	

TABLE 4 (continued)

Panel B: Optimism (*PT_OPT2*)

	Difference in PT_OPT2		*PT_OPT2_IND*		*PT_OPT2_IB*	
	(1)		(2)		(3)	
Intercept	-0.255	***	-0.085		0.154	**
	(-3.09)		(-1.10)		(2.52)	
Δ*XFIN*	-0.188	**	-0.035		0.145	*
	(-1.98)		(-0.37)		(1.68)	
log(*MV)*	-0.002		0.029	***	0.031	***
	(-0.16)		(2.97)		(4.13)	
MTB	-0.008	***	-0.010	***	-0.002	
	(-3.24)		(-3.81)		(-1.09)	
TAcc	-0.048		-0.156	**	-0.107	*
	(-0.65)		(-1.98)		(-1.79)	
BHR	-0.446	***	-0.421	***	0.023	
	(-15.57)		(-14.86)		(0.89)	
STD_RET	0.872	***	2.030	***	1.208	***
	(4.07)		(10.19)		(7.15)	
NANALYST	0.024		0.063	***	0.041	**
	(1.01)		(2.76)		(2.09)	
N	4,507		4,507		4,507	
Adjusted R^2	0.060		0.103		0.033	

TABLE 4 (continued)

Panel C: Optimism (PT_OPT3)

	Difference in PT_OPT3		*PT_OPT3_IND*		*PT_OPT3_IB*	
	(1)		(2)		(3)	
Intercept	-0.023		-0.182	**	-0.159	***
	(-0.30)		(-2.53)		(-2.81)	
Δ*XFIN*	-0.116		0.013		0.129	*
	(-1.35)		(0.16)		(1.72)	
log(*MV)*	-0.001		0.028	***	0.030	***
	(-0.13)		(2.88)		(4.08)	
MTB	-0.006	***	-0.007	***	-0.001	
	(-2.77)		(-3.24)		(-0.73)	
TAcc	-0.094		-0.123		-0.029	
	(-1.24)		(-1.62)		(-0.48)	
BHR	-0.390	***	-0.362	***	0.028	
	(-12.27)		(-12.60)		(1.12)	
STD_RET	0.184		1.194	***	1.010	***
	(0.91)		(6.38)		(5.92)	
NANALYST	-0.004		0.028		0.032	*
	(-0.19)		(1.32)		(1.67)	
N	4,507		4,507		4,507	
Adjusted R^2	0.040		0.063		0.026	

TABLE 4 (continued)

Panel D: Accuracy (*PT_ACCU*)

	Difference in PT_ACCU		*PT_ACCU_IND*		*PT_ACCU_IB*	
	(1)		(2)		(3)	
Intercept	-0.141	**	-0.447	***	-0.311	***
	(-2.33)		(-7.97)		(-5.68)	
Δ*XFIN*	-0.011		-0.178	*	-0.168	*
	(-0.15)		(-1.84)		(-1.74)	
log(*MV)*	-0.004		0.027	***	0.031	***
	(-0.53)		(2.68)		(3.36)	
MTB	0.004	*	-0.001		-0.005	**
	(1.73)		(-0.39)		(-1.99)	
TAcc	0.057		0.099		0.041	
	(0.66)		(1.25)		(0.53)	
BHR	0.027		0.004		-0.027	
	(1.18)		(0.17)		(-1.01)	
STD_RET	0.198		-0.663	***	-0.845	***
	(1.04)		(-3.49)		(-4.06)	
NANALYST	0.041	**	-0.020		-0.061	**
	(2.23)		(-0.67)		(-2.28)	
N	4,507		4,507		4,507	
Adjusted R^2	0.004		0.024		0.031	

TABLE 5
Analysis of EPS forecasts in common sample

This table assesses independent and investment-bank analysts' forecasts of current-year EPS relative to I/B/E/S actual EPS for the period 2011 to 2015 for the common sample of 1,242 independent price targets, LTG forecasts, and EPS forecasts, for which there are non-missing investment-bank analyst price targets, LTG forecasts, and EPS forecasts. EPS forecast optimism (*EPS_OPT*) equals (Forecast – Actual)/Price and EPS forecast accuracy (*EPS_ACCU*) equals -|*EPS_OPT*|. *Difference* is the independent analyst's forecast error less the median investment-bank analyst's forecast error; positive *Difference* for *EPS_OPT* indicates greater optimism for the independent forecast relative to the median investment-bank analyst forecast while positive *Difference* for *EPS_ACCU* indicates greater accuracy for the independent analyst forecast. *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. Variable descriptions are in the Appendix.

Panel A: Descriptive statistics

	N	Mean	Std Dev	Min	25%	Median	75%	Max
EPS_IND	1,242	3.34	2.47	-3.03	1.68	2.89	4.45	16.75
EPS_IB	1,242	3.32	2.50	-3.51	1.68	2.85	4.39	18.68
ACTUAL	1,242	3.29	2.95	-6.10	1.58	2.80	4.37	51.04

Panel B: Year-ahead EPS forecast optimism and accuracy

			Mean				Median			
		N	EPS_OPT		EPS_ACCU		EPS_OPT		EPS_ACCU	
2011	*EPS_IND*	184	0.001		-0.009		-0.001		-0.005	
	EPS_IB		0.002		-0.007		-0.001		-0.004	
	Difference		-0.001		-0.002	***	0.000		-0.001	***
2012	*EPS_IND*	242	-0.007		-0.024		0.001		-0.006	
	EPS_IB		-0.007		-0.021		0.000		-0.004	
	Difference		0.001		-0.002	***	0.000		-0.001	***
2013	*EPS_IND*	247	0.004		-0.011		0.000		-0.004	
	EPS_IB		0.003		-0.008		0.000		-0.003	
	Difference		0.001		-0.003	***	0.000		0.000	***
2014	*EPS_IND*	235	-0.014		-0.024		0.000		-0.004	
	EPS_IB		-0.010		-0.018		0.000		-0.003	
	Difference		-0.004		-0.007	*	0.000		-0.001	***
2015	*EPS_IND*	334	0.006		-0.011		0.001		-0.004	
	EPS_IB		0.003		-0.008		0.000		-0.003	
	Difference		0.002	**	-0.003	***	0.000	***	-0.001	***
All Years	*EPS_IND*	1,242	-0.001		-0.016		0.000		-0.004	
	EPS_IB		-0.002		-0.012		0.000		-0.003	
	Difference		0.000		-0.003	***	0.000		-0.001	***

TABLE 6
Analysis of long-term growth forecasts in common sample

This table assesses independent and investment-bank analysts' long-term growth forecasts relative to realized long-term EPS growth across varying horizons for the period 2011 to 2015 for the common sample of independent price targets, LTG forecasts, and EPS forecasts, for which there are non-missing investment-bank analyst price targets, LTG forecasts, EPS forecasts. The sample in this table is further restricted to forecasts with non-missing realized long-term EPS growth (*GROWTH*). *GROWTH* is calculated following Dechow and Sloan (1997) by fitting a least squares growth line through the logarithm of the four annual earnings observations from year t through year t + 3 (for 3-year LTG). If I/B/E/S actual earnings per share are missing or negative for year t or year t + 3, then a growth rate is not calculated for that observation.

Panel A provides mean and median *LTG_IND*, *LTG_IB*, and *GROWTH* where the latter is estimated using each of a 3-, 4-, and 5-year horizon. Panel B provides correlations among these variables based on 3 year realized EPS growth, with Pearson (Spearman) correlations presented below (above) the diagonal. Correlations that are significant at the 1% level are shown in bold. Panel C presents mean and median forecast errors for independent and investment-bank analysts' LTG forecasts relative to realized growth. LTG forecast optimism (*LTG_OPT*) equals (Forecast – Actual) and LTG forecast accuracy (*LTG_ACCU*) equals -|Forecast – Actual|. In Panel C, *Difference* is the independent analyst's optimism or accuracy less the median investment-bank analyst's optimism or accuracy; positive *Difference* for *LTG_OPT* indicates greater optimism for the independent relative to the median investment-bank forecast while positive *Difference* for *LTG_ACCU* indicates more accuracy for the independent analyst forecast.

*, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. Variable descriptions are in the Appendix.

Panel A: Independent and investment-bank analysts' LTG forecasts and realized LTG

	3 Year			4 Year			5 Year	
	N	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**
LTG_IND	383	8.81%	9.60%	240	8.40%	9.90%	94	6.90%	10.50%
LTG_IB	383	12.44%	12.00%	240	14.05%	13.00%	94	13.78%	12.25%
GROWTH	383	5.23%	5.90%	240	4.60%	5.88%	94	3.97%	5.77%

Panel B: Correlations

	LTG_IND	***LTG_IB***	***GROWTH***
LTG_IND		**0.51**	**0.24**
LTG_IB	0.11		**0.27**
GROWTH	0.02	0.11	

TABLE 6 (continued)

Panel C: Long-term growth optimism and accuracy – means

	3 Year		4 Year		5 Year	
	LTG_OPT	**LTG_ACCU**	**LTG_OPT**	**LTG_ACCU**	**LTG_OPT**	**LTG_ACCU**
LTG_IND	3.58%	-15.77%	3.80%	-16.62%	2.93%	-18.02%
LTG_IB	7.21%	-13.33%	9.46%	-12.62%	9.81%	-11.21%
Difference	-3.63% **	-2.44%	-5.66% **	-4.00% *	-6.88%	-6.82% *

Panel D: Long-term growth optimism and accuracy – medians

	3 Year		4 Year		5 Year	
	LTG_OPT	**LTG_ACCU**	**LTG_OPT**	**LTG_ACCU**	**LTG_OPT**	**LTG_ACCU**
LTG_IND	3.80%	-6.73%	3.95%	-6.49%	3.28%	-6.29%
LTG_IB	5.49%	-7.07%	5.80%	-7.26%	4.20%	-6.46%
Difference	-1.65% ***	0.40%	-2.26% ***	1.00% *	-1.87% ***	-0.10%

Panel E: 3-Year long-term growth optimism and accuracy by year

			Mean		Median	
		N	**LTG_OPT**	**LTG_ACCU**	**LTG_OPT**	**LTG_ACCU**
2011	*LTG_IND*	109	2.42%	-16.16%	4.18%	-6.93%
	LTG_IB		8.65%	-10.64%	5.41%	-6.25%
	Difference		-6.23%	-5.52%	-2.20% ***	0.08%
2012	*LTG_IND*	149	1.81%	-17.33%	2.32%	-6.74%
	LTG_IB		8.27%	-13.97%	6.52%	-7.88%
	Difference		-6.45% **	-3.36%	-2.41% ***	1.00% **
2013	*LTG_IND*	125	6.69%	-13.58%	4.16%	-6.67%
	LTG_IB		4.69%	-14.91%	4.51%	-6.97%
	Difference		2.00%	1.33%	-0.30%	0.16%

TABLE 7
Analysis of cost of equity capital estimates in common sample

This table assesses numerous CoEC estimates relative to ex post realized returns for the common sample of 1,242 independent price targets, LTG forecasts, and EPS forecasts, for which there are non-missing investment-bank analyst price targets, LTG forecasts, and EPS forecasts. For each independent CoEC estimate in our sample we reverse-engineer *R_CT*, *R_GLS*, and *R_PEG* CoEC estimates from investment-bank analysts' EPS forecasts and price, and we obtain the most recent Bloomberg quarterly CoEC estimate, where available.

Panel A presents descriptive statistics for the CoEC estimates and returns used in this table, and Panel B provides the Fama-MacBeth results of regressing year t+1 realized returns (RET_{t+1}) on each of the CoEC estimates, as in the following Equation:

$$RET_{it+1} = \alpha_0 + \alpha_1 CoEC_{it} + \epsilon_{it}$$

*, **, and *** represent significance at the 10%, 5%, and 1% level, respectively. Variable descriptions are in the Appendix.

Panel A: Descriptive statistics for CoEC estimates and returns

	N	Mean	Std Dev	1%	25%	Median	75%	99%
R_IND	1,242	0.103	0.012	0.075	0.100	0.100	0.110	0.140
R_CT	1,040	0.147	0.191	0.013	0.054	0.070	0.103	0.870
R_GLS	1,012	0.162	0.184	0.005	0.077	0.097	0.137	0.876
R_PEG	995	0.182	0.250	0.013	0.057	0.082	0.120	0.969
R_BLOOM	1,049	0.108	0.025	0.064	0.091	0.106	0.123	0.182
RET_{t+1}	1,242	0.069	0.298	-0.659	-0.096	0.069	0.218	0.885

Panel B: Regressions of realized returns (RET_{t+1}) on CoEC estimates

	N	Intercept		$CoEC_{it}$	Adjusted R^2
R_IND	248	0.341	**	-2.606	0.043
R_CT	208	0.076		0.072	0.003
R_GLS	202	0.071		0.060	0.001
R_PEG	199	0.074		0.070	0.001
R_BLOOM	210	0.317	***	-2.249	0.062

TABLE 8
Individual comparisons of independent vs. investment-bank analysts

This table compares independent analysts' estimates with individual investment-bank analysts' estimates in the common sample. For each firm-year, we compare the optimism and accuracy of the independent forecast relative to each individual investment-bank analyst's forecast (rather than comparing the independent forecast to a median of investment-bank analysts). For each firm-year, we then calculate the percent of times the independent forecast is more/less optimistic and more/less accurate than each of the investment-bank analysts' forecasts for that firm at the same point in time. We report in Panels A and B, respectively, the overall average percentage of times when the *IND* forecast is more/less optimistic and more/less accurate than the individual investment-bank analysts' forecasts for the same firm for each of price targets, EPS forecasts, and LTG forecasts. For price targets, we use the *PT_OPT3* and *PT_ACCU* measures of optimism and accuracy. Variable definitions are in the Appendix. The respective number of price target, EPS, and LTG forecast pairings used in this analysis is 8,052, 9,360 and 759.

Panel A: Optimism

	IND estimate more optimistic than IB estimate	IND estimate less optimistic than IB estimate	IND estimate as optimistic as IB estimate
PT_OPT1	28.33%	71.65%	0.02%
PT_OPT2	22.53%	68.80%	8.67%
PT_OPT3	11.81%	26.37%	61.82%
EPS forecasts	49.65%	47.57%	2.78%
LTG forecasts	35.31%	63.64%	1.05%

Panel B: Accuracy

	IND estimate more accurate than IB estimate	IND estimate less accurate than IB estimate	IND estimate as accurate as IB estimate
Price targets	41.10%	58.88%	0.02%
EPS forecasts	38.44%	58.37%	3.19%
LTG forecasts	53.89%	45.06%	1.05%