# How and Why Do Managers Use Public Forecasts to Guide the Market?*

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**Abstract**

We compare publicly disclosed forecasts and internal forecasts collected by confidential government surveys using a sample of publicly-listed Japanese firms. Both forecasts are mandatory and meaningfully predict corporate policy, and while both forecasts tend to be overoptimistic on average, public forecasts tend to be pessimistic relative to internal forecasts. Firms with greater shareholder pressure and those with executives with more bonus-related compensation are more publicly pessimistic. Public pessimism guides market beliefs down, predicting higher future stock returns, earnings surprises, and executive (but not rank-and-file) compensation. Finally, public pessimism flips to optimism when firms are financially constrained and more likely to issue secondary equity offerings, consistent with an inter-temporal trade-off between benefits from meeting managerial goalposts versus maintaining financial flexibility.

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# 1 Introduction

Corporate financial policy hinges on firm managers' beliefs but beliefs are difficult to observe. Therefore, investors rely on managers to be forthcoming with relevant information such as key business developments and forecasts of future profits and sales. Whether managerial forecasts are irrational or whether the public disclosure is strategically biased is a first order question for market efficiency. However, disentangling the two hypotheses is challenging due to a lack of direct measures of private beliefs. Without this counterfactual, existing research has relied on stock price reactions, indirect revealed preference through corporate actions, or voluntarily disclosed data, finding conflicting results.[1]

In this paper, we use a unique setting in Japan to empirically study whether managers appear to strategically guide market expectations through the lens of a simple illustrative framework whereby managers tradeoff interim financial flexibility needs with later managerial benefits. The setting from Japan has two unique features: (1) stock exchanges require managers to issue public guidance on sales and ordinary profits and (2) the Ministry of Finance regularly surveys firms for aggregate business outlook reports, coincidentally collecting the same information (and more) at roughly the same time.[2] Thus, we observe two versions of the same number, different only by their audience and reporting incentive.

Our setting solves three empirical challenges. First, *public* firm forecasts are not mandatory in all public markets – voluntary disclosure introduces a selection bias in the firms that choose to make a forecast.[3] Second, prior studies do not have public and internal versions of the same numbers. By comparing public and internal forecasts made around the same point of time, we can include firm-time fixed effects, which account for confounding effects from managers' behavioral biases, firm fundamentals, or time-varying forecast ability. Third, our unique survey data provide unique variables not normally available such as a novel and explicit measure of financial constraints which

[1] For example, on one hand, Bernhardt and Campello (2007) and Cotter et al. (2007) find managerial forecasts tend to be more pessimistic relative to analyses. On the other hand, Hilary and Hsu (2011), Ancarani et al. (2016), and (Hilary et al., 2016) find managerial forecasts and corporate actions imply managers tend to be overoptimistic. Using voluntary data, Gennaioli et al. (2015) find that investment plans and actual corporate investment are explained by CFO's expectations of earnings growth. Using revealed preferences, Malmendier and Tate (2005) argue that CEO overconfidence can account for observed corporate investment behavior.

[2] Aggregated public statistics are published to provide a representative snapshot of the Japanese economy for policymaking. More so, per the Statistics Act of 2004, these confidential survey responses cannot be used by any government agency to inflict legal repercussions on the firm.

[3] In the United States, less than the half of public firms issue quantitative sales and profit forecasts. Meanwhile, Kato et al. (2009) document that public managerial forecasts in Japan are effectively mandated, permitting a valid comparison of reporting quality and forecast accuracy, alleviating some of the endogeneity from voluntary disclosures addressed in Aboody and Kasznik (2000), Rogers and Stocken (2005), Cheng and Kin (2006), and Brockman et al. (2008), who find opportunistic voluntary disclosure decisions based on their stock option compensation, insider trading, and stock repurchases respectively. Additionally, Baik et al. (2011) find that whether a manager issues forecast is positively related to their ability. Guttman et al. (2014) provide a theoretical framework of optimal dynamic voluntary disclosure where managers delay information.

serve to reveal mechanisms driving strategic disclosure, isolating variation in reporting incentives to public markets but not the government.

Our main tests center around the causes and consequences of differences between the public and internal forecasts, capturing the discretion firms have in disseminating information. To build economic intuition for our tests, we present a toy model. If managers keep expectations low today, meeting expectations in the future is easier but the current stock price may be temporarily low. If managers manage expectations up today, the current stock price is higher, but meeting expectations in the future becomes harder. This intertemporal trade-off implies firms that anticipate financing needs will manage interim expectations upwards, while those that do not need financing will manage public expectations downwards, and particularly so when managers face larger penalties for missing expectations or larger rewards for meeting or beating expectations.

We find firms appear pessimistic in their public forecasts relative to internal forecasts for both profits and sales, and such pessimism is impactful to investors. These magnitudes are economically large – about 10% of the interquartile range of profit forecast errors on profits and the entire interquartile range on sales. The result holds not only on the intensive but also on the extensive margin when looking at the tendency of beating forecasts and is robust to applying narrower bands of company-by-time fixed effects. Our results are robust to alternative explanations concerning the survey response quality in the MoF survey. Moreover, although managers appear publicly pessimistic about both sales and profits, the distribution of profit forecast errors shows abnormal mass to the right of 0, a feature absent from internal profit forecasts and both private and public *sales* forecasts. We find as firms appear publicly pessimistic, they also appear to manage earnings to just beat public forecasts, effectively managing both expectations and ex post realizations that rationalizes the location of the mass in the first moment and decrease in the second moment. This set of findings suggests firms adjust along multiple margins.

Next, we study cross-sectional determinants of the public-internal forecast differential. We find that factors associated with more sensitive managerial payoffs to beating forecasts are associated with greater pessimism in public forecasts. For example, firms with a higher share of institutional investors are more publicly pessimistic. Moreover, conditional on the level of institutional ownership, this pessimism decreases when managers are "distracted" (a la Kempf et al. 2017) by stocks in other country-industries.[4] We also find firms with longer-term investors tend to be less pessimistic. These results suggest that capital market pressure from investors, while usually associated with

[4]We extend the identification strategy from Kempf et al. (2017), who use the US setting to identify shocks to investor attention originating from investors who own firms in other industries, to identify foreign attention allocation shocks resulting from investors who own firms in other industries in other countries. We believe this approach places a greater exclusion restriction on the investor attention shocks we use.

better corporate governance, could be a driver for the observed behavior.[5]

What does a manager gain from issuing pessimistic forecasts? Managers who exceed expectations may incur compensation increases or have a higher chance of retaining their job. First, we find managers who have been in their position for longer tend to be less publicly pessimistic, echoing the idea a longer-tenured CEO has more "power" (Pan et al., 2016) and are less beholden to external pressures like those from the capital markets. Second, we have unique executive compensation data not normally available in Japan, allowing us to observe total wages split into salary and bonus for officers and rank-and-file employees. We find that managers with greater pay-performance sensitivity of compensation - a higher share of bonus in total pay- tend to be more pessimistic. Ex post, we find more public pessimism predicts an increase in average corporate officer compensation in the next fiscal year in both salary and bonus, and in particular in the bonus component of officer pay.[6]

Then, we explore the impact of a forecast gap for financial markets, for which we study both analyst forecasts and stock returns. If managers possess no confidential information, disclose information through other avenues, or if analysts are able to undo any strategic disclosure, then the forecast gap should be irrelevant to external analyst forecasts. But it is not. We find more public pessimism predicts higher earnings surprises relative to stock analysts forecasts of year-end profits. We also find public pessimism predicts higher earnings announcement returns that do not reverse and find higher subsequent whole year returns. Thus, public forecast pessimism is associated with economically meaningful consequences for capital markets. This evidence also contrasts with the idea public forecast pessimism is a proxy for forecast updates: the market should not be differentially surprised if this information is incorporated.

Finally, we study variation in the extent of strategic behavior as a function of firm conditions. Motivated by our toy model, firms anticipating higher financial constraints should be more publicly optimistic as they may need to issue additional equity in the interim. We find firms with more cash relative to assets are more publicly pessimistic. Using responses in our survey dataset which explicit asks firms to identify their top business challenge currently, we find firms turn from public pessimism to public optimism relative to internal forecasts when they designate financial constraints as their most pressing business concern, particularly if the firm identifies equity as their primary source of financing. The fact that managers are optimistic (instead of pessimistic) when

[5]This finding is also helpful because it also helps us disentangle our main narrative from earnings management. With earnings management, managers divert resources to meet profits and sales targets – rather than merely managing expectations. However, given that we find a stronger effect in *better governed* firms, we argue this is less likely as earnings management is characteristic of poorly governed firms.

[6]Japanese corporate managers are not required to disclose details of executive compensation packages but our survey data includes data on executive and employee compensation that are not normally known about Japanese firms. In 2010, managers who made above $100 million yen were required to disclose portions of their executive pay, but this constraint is not binding for the vast majority of corporate managers.

financially constrained is consistent with firms needing a short-term stock market boost if they need to issue more equity on order to achieve a favorable valuation through disclosure. Finally, we find firms that are publicly pessimistic are less likely to issue over the next year.[7]

Taken altogether, our results document an intertemporal trade-off in strategic public forecasting as more public pessimism generates delayed capital and labor market benefits at a cost of temporarily lower short-term stock prices. The strategic public forecasting is economically meaningful, accounting for variation in corporate investment, stock market returns, earnings surprises, and secondary equity offerings. In other words, this strategic disclosure not only affects asset prices but also corporate finance.

This paper primarily contributes to two strands of literature. The first relates to the release of information by managers regarding earnings expectations. Bhojraj et al. (2009) document the unusual tendency for firms to "just beat" rather than "just miss" EPS consensus forecasts, while Bennett et al. (2017) examine how compensation-linked goals drive managers to cut investment.[8] Our paper introduces a novel empirical strategy of comparing the same number across two different reporting regimes that may be portable elsewhere. This paper is the first to illustrate this novel strategic tradeoff that managers make between financial constraints and governance through information revelation. Further, our findings suggest an unintended consequence of mandatory disclosures of goalposts such as earnings: their impact on informational efficiency in financial markets. The closest paper to ours studying the strategic behavior of public forecasts in Japan is Kato et al. (2009). Consistent with Kato et al. (2009), we find both public and internal forecasts are on average optimistic relative to realizations. The public forecasts appear systematically lower than internal forecasts. This "walking down" of forecasts occurs in both internal and public forecasts, but more so in public forecasts, resulting in a larger public pessimism prior to earnings announcements. So overall, our results are consistent with the previous findings, and further (1) attributes this behavior to both strategic and behavioral considerations, (2) characterizes economic determinants moderating whether the public optimism switches to pessimism relative to internal forecasts, and (3) relates the implications of these behaviors to real corporate policy and capital market outcomes.

Another closely related paper is Johnson et al. (2020) who argue that firms appear to manufacture surprise earnings by revising downward market expectations of earnings prior to the earings announcement date, contributing to returns seasonality. Our results on earnings announcements

[7] This finding is consistent with Schrand and Walther (2000) who find managers are more likely to low-ball the benchmarks when they are likely to have lower-than-expected earnings.

[8] In addition, Bergstresser et al. (2006) show that managers manipulate firm earnings through their statement of pension assets and alter corporate investments to justify those statements. The findings in the paper are consistent with several empirical regularities that document managers tend to issue downward-biased guidance, such as Baginski et al. (2002), Matsumoto (2002), and Cotter et al. (2007).

concur, providing evidence of external validity for our study.[9] However, relative to Johnson et al. (2020), we conceptualize how the economic conditions of the firm may cause firms to switch from public pessimism to optimism due to intertemporal considerations.[10] Further, we study the real impacts of such strategic behavior on corporate finance and real investment.

Second, our paper is also related to a growing literature on managerial expectations and their impact on corporate behavior and the macroeconomy.[11] While expected profits and sales are powerful drivers of corporate investments, on the margin, our findings suggest realized corporate investments relative to plans are managed to beat public forecasts. As our study quantifies this forecast bias, future researchers who find evidence of limited rationality by managers should ask whether expectational errors are of sufficient magnitude that can be explained by any potential distortion in reporting incentive.

The rest of the paper is as follows: Section 2 discusses the Business Outlook Survey, data, and presents our empirical framework and hypotheses, Section 3 presents the main results on public pessimism, Section 4 studies the impact of corporate governance on public pessimism, Section 5 studies the impact of short-term financial constraints on public pessimism, and Section 6 concludes.

# 2 Data and Hypotheses

Our data comprise firms required to make public and internal forecasts of profits and sales around the same point of time. For public forecasts, all public firms are required to make publicly available sales and profit forecasts (Kato et al. 2009). For internal forecasts, we rely on a mandatory government survey program: the Business Outlook Survey, which is one of many government surveys administered by the Japanese governent for the purpose of aggregated forecasting.

[9] More broadly, regarding external validity, despite taking place in Japan, key drivers of our results are common worldwide: institutional investors prevalence and the global push for "good governance" practices such as pay for performance sensitivity. Regardless of culture, managers always have competing incentives to low-ball (capital market pressure) and to high-ball (financial constraints). Moreover, Japan has the third largest economy in the world, and one proposed explanation for Japan's recent economic stagnation has been poor corporate governance. Moreover, executive compensation in Japan has largely been unexplored as the data are not widely disclosed. Our findings suggest that even if Japanese compensation is lower in *levels* as documented by Pan and Zhou (2018), goal-driven incentive compensation impacts real investment and disclosure as they do in other capital markets.

[10] At first glance, the results from Johnson et al. (2020) contradict those from Kato et al. (2009), but are reconciled through the different timing of analyses which we conduct and the moderating financial constraints which cause firms to switch from public pessimism to optimism.

[11] Using survey data, Gennaioli et al. (2015) show that manager beliefs explain corporate investments and Libby and Rennekamp (2012b) find evidence of overconfidence. Ma et al. (2018) calibrate a macroeconomic model with managerial expectation distortions and argue that the aggregate effect of managerial forecast biases are economically large. In addition, both the industrial organization and finance literature has studied managerial rationality through revealed corporate actions. For example, Camerer and Lovallo (1999) study plant-level entry and exist data and Malmendier and Tate (2008) study mergers and acquisitions.

## 2.1 The Business Outlook Survey

Since 2004, the Japanese Ministry of Finance (MoF) and Cabinet Office have conducted the Business Outlook Survey (BOS). The survey is implemented to evaluate the business condition of firms and is conducted separately from other Japanese surveys that have been used in other studies.[12] The MoF uses some information from the BOS in producing its Monthly Economic Report, which is made publicly available with only aggregated statistics. None of the disaggregated firm-level data we use in this paper has ever become public.

The MoF samples firms annually, stratifying within buckets of firm size defined by paid-in-shareholder capital for corporations and two digit Japanese Standard Industrial Classifications (J-SIC). All firms within the largest size category, with 2 billion yen of paid-in capital or more (around US$20 million in paid-in capital), are sampled every year. Since a large fraction of publicly listed firms fall into the largest size, we are able to construct a panel of public firms.[13] Once a firm is selected into the sample, they are issued four quarterly surveys. Responses are confidential and stored in an air-gapped computer in the MoF. The Japanese fiscal year begins in April, so the first survey is collected in the middle of June. The MoF collects the Q2 survey in the middle of September, and then in the middle of December, and finally in the middle of March prior to the fiscal year end. For this last forecast horizon, firms are asked to forecast their profits *the next year*. At all forecast horizons, the firm is forecasting the annual number.

The BOS collects two sets of items: (1) quantitative forecasts such as those for sales and ordinary profits (as well as their eventual realized numbers) and (2) qualitative questions on firm and macroeconomic conditions. We provide more details on the exact questions polled in Appendix B. Importantly, one of the qualitative questions reads "What are the major determinants affecting your business success?" The question is rank-choice out of over 10 options, and includes "financing condition". We use this question as a proxy for financial constraints.[14] Finally, the MoF issues a complementary survey called the Annual Financial Statistics survey, which provides detailed year-end financial statistics such as payroll data split into bonus and salary for officers and

[12] For example, the Tankan survey conducted by the Bank of Japan that "aims to provide an accurate picture of business trends of enterprises in Japan, thereby contributing to the appropriate implementation of monetary policy". Meanwhile, Tanaka et al. (2019) use a survey of GDP forecasts made by Japanese managers from another government survey. The BOS is lesser known compared to media-reported economic statistics and the Bank of Japan's Tankan survey. The data we use is also used by Chen et al. (2018) who focus on the full cross-section of firms. However, their study does not focus on public firms. Instead, they focus on demonstrating that the survey predicts real firm actions such as investment, suggesting forecasts are meaningful indicators of firm beliefs.

[13] Medium-sized firms are sampled at around 50%, and smaller firms are sampled at a smaller probability. Additional details on the sampling and timing of the survey are shown in Appendix B.

[14] In untabulated results, we verify that firms answering that financing condition is their greatest concern behave very strongly like a financial constraints measure in that it echoes many prior findings in the literature: firms which are larger, have more debt and less cash and are more equity-dependent are empirically likelier to reveal they are financially constrained.

rank-and-file employees, providing unique detail into Japanese compensation.

The survey may be filled out either online or by hard copy. The overall response rate is nearly 80% and nears 90% for large firms, our sample of interest.[15] For comparison, the Campbell and Harvey dataset covers a much smaller sample and response rates are around 15%. So why are response rates so high? One contributing factor is that the surveys are kept confidential. Also, while technically mandatory, the MoF is not allowed to pursue the penalty of a company based on the content of their responses per the Statistics Act.[16] Another factor is Japanese culture, which is generally considered to be more collectivist and relatively trusting of the government. Anecdotally, Japanese managers feel it is their duty to answer this survey and others that come through.[17] In addition, the high response rates to the MoF are not particular to this survey: as a comparison, the average response rate on all firms sampled for the Bank of Japan's Tankan survey, which collects information on forecasted aggregate growth and annual projections, is 99.5% in FY 2019.[18] Whereas the Tankan Survey is heavily cited in the financial media due to the impact it might have on the Bank of Japan in setting monetary policy, the MoF Survey has a relatively lower profile in the media, mitigating concerns about incentives firms might have to report to the government.

## 2.2 Sample Construction

We merge Nikkei NEEDS and the BOS by hand to construct a panel of forecasts made throughout the fiscal year. For the internal forecasts, because firms are sampled for a year, each firm makes four forecasts per year to the MoF right before quarter end. This permits a structured dataset with updates of the same forecast target as more information is revealed.

Public forecasts follow a different reporting convention. Once firms issue a public forecast, they are no longer required to issue again except to make updates in response to material changes, but in practice the forecasts get updated typically before the year end.[19] Public firms in our sample issue just over two public forecasts per year in a typical year. We collect data on public manager guidance from Nikkei NEEDS, a leading provider of Japanese capital market data. From this dataset we exact guidance on ordinary profits and sales, corresponding to items surveyed by the

[15] Table B.3 in the Appendix shows the average annual response rates by year from FY 2004 to FY2017.

[16] We are unable to acquire time stamps of the process from the filling of the form to its emergence in the MoF database, so we are unable to empirically test whether information appears to leak to the financial markets around these times.

[17] According to the 2019 Edelman Trust Survey, the Japanese trust the government 15% more than the media. This is in contrast with the United States, where trust in the media and government are equal.

[18] Since the BOS may contain insider information, a concern may be that information may leak to the public and move stock prices. Although such leakage of information would be criminal misconduct according to the Statistics Act, it may still occur. Unfortunately, we do not have the date and time stamp to test whether stock prices move right around the date of BOS filing. We can check whether stock prices move prior to the earnings announcements in a way that is predictable with the BOS data, but would not be able to attribute that movement to the exact event of BOS filing.

[19] According to Rule 207 of the Japanese Enforcement Rules for Securities Listing Regulation, firms are required to announce revised forecasts when there is a significant change in previously published forecasts (e.g. 10% of sales, 30% of ordinary profits).

BOS. Nikkei NEEDS collects manager profit forecasts and updates throughout the year. Ma et al. (2018) perform analysis using around 1,000 US firms (of well over 4,000 listed firms in the US at any given point in time) who report *public* forecasts.

The MoF issues its own identifier for the survey and does not collect the firms' legal identification number or tax number, a testament to the idea the MoF pre-commits to not using the data for any other *official* purpose than statistical tabulations. We obtain data from fiscal years 2005 to 2017 and a partial-year snapshot as of May 2018. We match firms to Nikkei NEEDS based on name and financial data.[20] In the end, we match over 1,800 firms per year and over 4,000 firms in total using a combination of firm name and varying granularities of its address and industry.[21]

Finally, we also only restrict the sample to companies with fiscal year ending in March 31, so that financial statements, public forecasts, and confidential survey data are aligned. We have little reason to believe the omitted firms from either NEEDS or the BOS are the cause of any sort of bias. As we show in Table 1, on an equal weighted basis, the financial ratios and characteristics of the firms in our sample and the full sample are similar. We exclude financials but include utilities.[22]

The firms in our sample are representative of the broader public firm universe. Table B.3 shows the survey response rate of firms. The number of firms in our sample stays roughly constant over time, with about 1,800 firms per year from beginning to end. The average number of forecasts, including both public and four internal forecasts, in our sample is around 5.2 in every year. This suggests that the average firm only makes one public forecast, usually at the beginning of the year. Thus, in important robustness checks, we will focus on comparing the first forecast made by the firm to the MoF survey and the first forecast made to the public, as not all firms issue subsequent updates.

[20] To merge the dataset, we first exact matches of name and location. We then perform fuzzy matching on the remaining firms. We match by employing a variety of contextual information such as location, financials, industry codes and other available information. We hand check the results matching the name and sales numbers reported to Nikkei NEEDS and the MoF and find we have a very low false positive rate. In addition, to further verify the match, we check whether publicly reported corporate financial statements match with the figures reported in the BOS. The reported numbers are quantitatively highly similar and appear only to differ due to rounding conventions. Any match that deviates substantially is a suspected mismatch and discarded from the sample. We further verify all matches by hand, particularly to ensure matched pairs have the correct scoping, so a firm is not matched into its subsidiary or parent company.

[21] There are some reasons for incomplete coverage. The Japanese stock market consists of around 3,200 listed firms in Compustat on a consolidated basis. There are three reasons why we have incomplete coverage. (1) Some of the firms we do not capture are very small, and thus not covered by the BOS. (2) Even if the firm was surveyed, our match procedure may have produced some false negatives. (3) Around 10% of our sample do not end their fiscal year in March, making it difficult to compare forecast errors as they are at different horizons, and it is less clear the firm's internal projects would be as thoughtful as if they aligned with the firm's own fiscal year. In addition, where there are still duplicates where one public forecast may match to multiple internal forecasts of the same horizon, we further filter the data on observations with only four internal forecasts within a firm-year.

[22] Although regulated financial institutions like banks and insurance companies are included in the BOS, because they have different financial statements reporting rules, we drop all financial institutions when merging the BOS to the MoF's financial statistics data. Our conclusions are insensitive to removing utilities from our sample.

[Table 1]

Table 1 shows the summary statistics of the forecast errors split into long or short horizon based on a 6-month threshold as well as whether they are public or confidential. The median public forecast error for both sales and profits at both longer and shorter horizons is more positive. Moreover, the average absolute errors of the public forecasts tend to be smaller than the internal forecasts for both sales and profits forecasts and for both long and short horizons. The median firm in our sample has 35 million yen of sales, 38 million yen of assets, and a book-to-market value of 1.00. The median firm has 670 employees. As shown explicitly in A.2, our sample does not appear considerably different from the full sample of all publicly-listed firms in the Japanese economy.

## 2.3 Framework & Hypotheses

Given a setting in which one can observe internal forecasts made to the government and the same numbers disseminated publicly, our goal is to characterize the difference between the two, why they differ, and what the implications might be for real outcomes. We first test whether these internal forecasts are predictive of corporate investment.

*H1: internal forecasts are informative of corporate investment.*

Should internal forecasts be informative of managers' profit expectations, Q-theory suggests that higher expected profits should predict higher investments. To be clear, we only observe 1-year profits whereas traditional investment theories compare the user cost of capital with the total marginal net present value of the profits generated by the investment. That being said, to the extent that profitability today is correlated with profitability in the future, we should expect a positive relation between expected profits and investment. In addition, we also expect a positive but potentially weaker relation for expected future sales since new investments may generate more sales or raise profits by decreasing expected future costs. An additional concern with the internal forecasts is that although they cannot legally be used to penalize firms, firms may distrust the government and not be inclined to report useful numbers at all. Thus, this hypothesis also tests whether the reported numbers contain useful information for corporate policy. Having established whether the public and private forecasts are meaningful expectations for corporate policy, the first question is whether or not the public and internal forecasts are the same, and if there is a systematic difference, in what direction. We begin by illustrating the trade-off a manager faces.

To illustrate the framework, we consider a stylized two intra-year period model where managers have more information about the firm's expected annual profits $\pi$ than outside investors. At the beginning in (time period 0) the manager does not know the exact cashflow the firm will produce at year end in (time period 2) but makes an internal forecast of annual profits $\hat{\pi}^{Confidential}$ for capital budgeting purposes and also makes a public forecast $\hat{\pi}^{Public}$ which is observed by outside

investors.[23]

In period 1, investors set prices $P_1$ of the firm based on reported profitability with $\frac{\partial P_1}{\partial \hat{\pi}^{Public}} \geq 0$, meaning interim stock prices are weakly positively affected by the reported public forecast. The firm also draws some random intermediate cash flow $c$ that is observable to the manager but not to outside investors. If the cashflow is not sufficient ($c < I$) for some necessary threshold $I$ to remain in operation, the firm becomes financially constrained and it will need to raise equity of at least $I - c$. If the cashflow $c > I$, the firm is not financially constrained.

In period 2, the firm's final annual profits are realized and reported to the public, all uncertainty is resolved, and the manager is paid $M(\pi - \hat{\pi}^{Public})$ with which is assumed to be increasing in the realized annual profitability $\pi$ compared to the initial public forecasts ($\frac{\partial M}{\partial \pi} > 0$). Represented differently,

$$M\left(\pi - \hat{\pi}^{Public}\right) = M(\overbrace{\pi - \hat{\pi}^{Confidential}}^{\text{Internal Forecast Error}} - \overbrace{\left(\hat{\pi}^{Public} - \hat{\pi}^{Confidential}\right)}^{\text{Bias}}),$$

where we decompose the public forecasts into the forecast error relative to internal forecasts and a public bias term.[24] Empirically, this compensation package structure may take the form of a salary bonus tied to public expectations, assuming the compensation committee on the corporate board (or another relevant stakeholder, like a major institutional investor) does not know internal forecasts. Alternatively, it may also take the form of stock or option grants where the year-end stock price depends on the surprise unexpected earnings with respect to the manager's public forecasts.

An interior optimal public bias takes the form

$$Bias^* = \overbrace{\frac{\partial P_1}{\partial Bias}}^{\text{Sensitivity of Interim Stock Price}} \times \underbrace{\Pr(c < I)}_{\text{Prob. of Being Financial Constrained}} - \overbrace{\frac{\partial M}{\partial Bias}}^{\text{Managerial Payoff Sensitivity}} \quad (1)$$

The equation above shows that whether the manager will tend to bias the public forecast upwards or downwards relative to internal forecasts depends on three elements: (1) how much the interim stock price is affected by the public forecasts, (2) the probability that the firm will be financially

[23] We can micro-found this confidential forecasting assumption for the private forecasts as the firms needing to make assumptions for capital budgeting purposes, meanwhile public firms are effectively required to public forecasts.

[24] The economic intuition from this set up is robust to introducing an explicit penalty term making larger public biases.

constrained, and (3) the manager's payoff from beating public expectations.[25] In our empirical analyses, we map different variables into each of these three key economic fundamentals.

In practice, managers care about capital market responses for several reasons. First, they may seek to issue equity in the future. Second, executive compensation is often tied to annual financial performance. Third, managers can time the market with insider trades, which are actually not publicly recorded in Japan. We therefore assume that managers benefit from beating expectations.[26]

If managers do not perceive the firm to be financially constrained, so long as managerial compensation responds positively to realized performance compared to public forecasts, managers would want to keep public expectations low relative to their private beliefs. In this case, the public forecast will be pessimistic relative to the internal forecast. The interim valuation $P_1$ will be lower than if the manager were truthful, but then when the year ends, the manager will appear to more likely beat public forecasts of earnings, resulting in a larger compensation. However, a manager may also have times where it is more costly to low-ball or more beneficial to high-ball, when they need stock prices to be in the near term.

The optimality condition represented in Equation 1 also shows that if interim stock prices and managerial compensation both do not react to public bias, public forecasts will be unbiased. In particular, if capital markets are efficient in the strong form, then interim stock prices are not affected by the bias as outside investors know the public forecasts. In addition, we would expect the manager's compensation contract to also not be affected by the public bias if the compensation committee on the board of directors know the firm's internal forecasts. If interim stock prices respond to public bias and managerial compensation does not, we will observe public optimism. If interim stock prices do not respond to public bias and managerial compensation does, we will observe public pessimism on average. Finally, if both the stock returns and managerial payoffs respond to public forecast bias relative to internal forecasts, then the average sign of the bias is unclear.

Crucially, our toy model guides our statistical inference as it shows the incentives for being publicly pessimistic arise from multiple sources. If managers are publicly pessimistic on average,

[25] This toy model nests the concepts presented in Johnson et al. (2020) and extends the framework to include corporate financing and executive compensation incentives. Focusing on stock return behavior, Johnson et al. (2020) introduce the Expectations Management Incentive measure based on a linear combination of variables designed to capture the attention of the market for a firm's public forecast, pressure from capital markets to beat forecasts, and relevance of the stock price to earnings news. In our framework, all three economic concepts are captured in the term $\frac{\partial P_1}{\partial Bias}$ – the sensitivity of the stock price to earnings forecasts. In addition, Johnson et al. (2020) find that insiders strategically time their trades following the average positive stock return at the announcement date, which is captured in our framework by $\frac{\partial M}{\partial Bias}$ – the managerial payoff sensivitiy in our framework. We note our presentation does not require that managers are compensated for beating forecasts solely through their trading behavior, but may also manifest through bonuses or stock options. This means managerial payoff sensitivity need not be tied together with the sensitivity of the stock price to public forecasts.

[26] In fact, empirical evidence suggests managers in fact benefit discontinuously when they just beat expectations versus when they just miss (Bhojraj et al., 2009).

it could be due to rational investors who are not affected by the bias, a low probability of being financially constrained, or a very high payoff for managers for beating public forecasts. Managers who meet expectations are likelier to keep their job and earn higher compensation conditional on keeping the job. This gives rise to our next hypothesis.

*H2: All else equal, firms whose manager compensation is more sensitive to the public bias will have higher public pessimism.*

If a manager's compensation package at the end of the year is more sensitive to the firm's performance relative to public forecasts, we expect the managers to be more publicly pessimistic. This introduces a positive correlation between public pessimism and higher executive compensation the following year. In addition, we expect firms with higher bonus shares in compensation – a proxy for performance sensitivity (due to a larger $\frac{\partial M}{\partial Bias}$) – to be more likely to low-ball. Given tendencies of managers to own greater portions of the firm, the benefits of beating stated expectations should accrue primarily to managers, who are involved in setting expectations, rather than rank-and-file employees.

Under the assumption that institutional owners are more sensitive to financial performance than other types of investors like retail or other strategic block-holders, firms with more institutional investors would be more publicly pessimistic, represented in the hypothesis below.

*H3: If (foreign) institutional investors apply capital market pressure on managers, more institutional ownership predicts greater public pessimism and institutional distraction predicts less public pessimism.*

When foreign investors are distracted, the manager's payoff becomes less sensitive to year-end performance relative to public forecasts, so managers will be less publicly pessimistic. Relatedly, managers of firms should have less incentive to be publicly pessimistic if their investors have a longer horizon, having held the stock for longer. In addition, firms whose CEOs may be more entrenched should have less incentive to beat their annual public forecasts, so they are less publicly pessimistic (Bebchuk and Fried (2003) and Casamatta and Guembel (2010)). Therefore, measures related to the longevity and stability of the current ownership and management should be negatively associated with public pessimism.

*H4: If we observe public pessimism, the stock should have higher surprised unexpected earnings and stock returns at or around fiscal year end when actual profits are realized.*

More generally, if managers care about year-end stock returns, perhaps due to capital market pressures or other corporate governance mechanisms, and if capital markets can be guided by public forecasts, then firms facing more capital market pressure will have more incentives to be publicly pessimistic in order to exceed market expectations in the future. This is shown in the hypothesis H4 above.

*H5: All else equal, firms expected to be financially constrained will be less publicly pessimistic.*

By being pessimistic in the short-run relative to internal forecasts, firms trade off in the timing of stock returns in the near term for stock returns later on. Thus, firms with more financial flexibility like those with more cash should be more publicly pessimistic and those that explicitly state they are more financially constrained should be less publicly pessimistic. Rather than using self-reported indicators of financial constraints, we also expect that pessimistic firms should be less likely to issue additional equity during the time period following their forecast.

# 3 Main Results

## 3.1 Forecast Accuracy & Usefulness

For the internal forecasts of profits and sales to the government to be informative, it should be correlated with actual corporate policy, per the discussion from hypothesis H1. Using the first forecast in the fiscal year, Table 2 estimates regressions of the form

$$\text{Investment Rate}_{i,t} = \alpha_i + \alpha_{l(i),t} + \beta \text{Internal Forecast}_{i,t} + \varepsilon_{i,t}, \tag{2}$$

where $i$ indexes a firm, $t$ indexes a fiscal year, and $\alpha_i$ and $\alpha_{l(i),t}$ are firm and industry-by-year fixed effects respectively. The coefficients of interest is $\beta$, the relation between realized investment rates and internal forecasts of profits or sales. Investment rates are defined as capital expenditures divided by previous period's total plants, properties, and equipment, multiplied by 100. Table 2 shows that under a variety of specifications, both cross-sectionally and within firm, the confidential profit forecasts are positively associated with realized investment rates. We find that a one standard deviation increase in confidential profit forecasts increases investment rates by around 0.2 standard deviations.

[Table 2]

## 3.2 Comparing Public and Internal Forecasts

We first present graphical evidence of the differences between public and internal forecasts, followed by econometric evidence. Figure 1 shows the histogram of forecast errors which already show a stark contrast between public and internal forecasts for profits. Panel A shows sales forecast errors, where the internal forecast errors appear centered around zero but the public sales forecast errors appear to be shifted to the right. In other words, the forecasts are more pessimistic. Panel B repeats this exercise for profit forecast errors. Not only are public forecast errors shifted to the right, but there is also a noticeable mass just to the right of zero.

[Figure 1]

### 3.2.1 Differences in Average Forecast Error

Next, we conduct econometric tests relating the forecast error to whether the forecast was made publicly or confidentially. We stack all available forecasts into a pooled regression panel within a year because of the availability of counterfactual internal forecast as a basis for comparison. We run the following empirical specification:

$$\overbrace{\frac{Profits_{i,t} - \text{Forecast}_h^k(Profits_{i,t})}{Sales_{i,t-1}}}^{FE_{i,t,h}^{k,Profits}} = \alpha_{i,t} + \beta \text{Public}_{i,t,h} + f(h) + \varepsilon_{i,t,h}, \tag{3}$$

where $i$ indexes a firm, $t$ indexes a fiscal year, $h$ indexes a forecast horizon in months, $k$ denotes whether the forecast is public or internal, and our variable of interest Public is a binary variable defined to be one when $k =$ public and zero when $k =$ internal. Our notion of forecast error follows the existing empirical literature and is represented as a difference in realized and forecasted profit margin deflated by actual sales. Deflating by profits is problematic as profits can be zero or negative. In addition, in edge cases involving firms with low sales, scaling by a small total sales value may introduce large outliers. To address this concern, we winsorize our main analyses at the 1% level and also conduct our analysis at the extensive margin to show the robustness of our results. Finally, and most importantly for our identification, we include firm-year fixed effects. We cluster standard errors at the firm level.

A within firm-time specification isolates the strategic, rational behavior of the manager and controls for firm fundamentals and any firm-by-time confounding variables such as a manager's unconditional psychological bias or cognitive limitation. Importantly, any time-varying firm-level behavioral forecasting behavior or systematic mistakes in forecasting would be accounted for by the firm-year fixed effect. For example, a behavioral bias may cause the forecaster to overestimate or underestimate their sales and profits systematically, but this bias is common to both the confidential and public forecasts. The firm-year fixed effects account for lagged forecast errors relative to either public or internal forecasts as well as the past differences in public and private forecasts.

Table 3 reports our main result using the main specification in equation 3. Panel A reports profit forecast errors. We report three sets of results. Columns (1) and (2) report the "intensive margin", in this case referring to the average forecast error differential between a confidential and public forecast. Odd numbered columns have firm-year fixed effects, while even numbered columns tighten this to firm half-year specifications. Tighter windows on the company-time fixed effects alleviate the concern that firms report at a different time horizon than internal forecasts. Firm-quarter fixed effects show similar magnitudes but are significant in fewer specifications, which we ascribe to issues of statistical power.

The coefficient of *Public* in Column 1 is 0.104, which is about 5% of the unconditional $25^{th}$ to $75^{th}$ percentile range of forecast errors. However, this magnitude is much larger when considering the within firm-year distribution of forecast errors. Column 2 suggests the magnitude is similarly statistically precise and economically significant when adding firm-by-half-year fixed effects. Columns (3) and (4) reflect a similar magnitude on the extensive margin. Columns (5) and (6) show forecast accuracy is higher for the *Public* forecast, signified by a lower forecast public error. This is consistent with managers aiming to manage their public forecast. As shown in 1, managers appear highly incentivized to "just beat" their earnings forecasts.

[Table 3]

Panel B decomposes this main result at various time horizons. Although firms are only required to publicly disclose their profit and sales forecasts once a year, they must also update public forecasts in response to material updates. Consequently, our data contains multiple public forecasts within a firm-year. Therefore, we check whether forecasts on a shorter horizon from the year-end announcement date also display public pessimism. In fact, pessimism in public forecasts is more severe among short term forecasts as well. In Panel B, we compare point estimates of *Public* across various time horizons. We find evidence that managers also low-ball forecasts made with fewer than six months out, when managers have the least control over profits (as expenditures and sales have largely already occurred) but the greatest control over market expectations. Column 1 shows that medium and short horizon forecasts are not statistically less pessimistic or more optimistic than longer horizon forecasts. Split sample analyses in columns (2)-(4) suggest that if anything, shorter horizon forecasts are a little bit more pessimistic on the intensive margin. The results are similar on the extensive margin. Generally, the effect is present across all horizons, with managers being more robustly pessimistic at shorter horizons when one might imagine they have the strongest control over the price (less time for unexpected news to get impounded in the price). One potential interpretation of a steeper magnitude is that managers have an incentive to time year-end news releases, and it would be logical to drop expectations right before the earnings announcement rather than to release this information at the beginning of the year. Another potential interpretation is that the private forecasts are stale, which we address in more detail in Section 3.3.

### 3.2.2 Differences in Forecast Error Variance and Earnings Management

Given we find that it appears public forecasts are 'more accurate'. However, earnings are to some extent a choice variable of the firm, with the manager able to adjust reported earnings through 'real earnings management' or through acounting procedures. We suspect that this might be the case and test this hypothesis in Table 4 using a firm-year panel. To study any economic impact of the

difference between public and internal forecasts, we take the first forecast for both internal and public versions in the year. On these two forecasts, we then decompose the profit forecast error into internal $FE_{i,t}^{Profits}$ and Public Pessimism$_{i,t}$:

$$Y_{i,t} = \alpha_i + \alpha_t + \beta \text{ Public Pessimism}_{i,t} + \gamma \text{ Internal } FE_{i,t}^{Profits} + \varepsilon_{tf}, \tag{4}$$

where $i$ is a firm , $t$ is the fiscal year, internal $FE_{i,t}^{Profits}$ is the forecast error on internal forecasts. Public Pessimism is defined as the difference between confidential and public forecasts; a more positive number due to smaller public forecasts represents more public pessimism. We cluster standard errors by firm.

[Table 4]

In this analysis, the $Y_{i,t}$ variable relates to either the discretionary accruals or investment forecasts by the manager. Columns 1 and 2 report the raw investment forecast error. Note that neither the investment forecast nor its error are publicly reported in a similar way (although Japanese firms do report their investment plans in other ways). To the extent that managers are aiming to 'just meet' earnings estimates, we expect more public pessimism to be related to cuts in investment. Column 1 suggests a more positive public-private forecast differential (e.g. more public pessimism) yields a more negative forecast error. Breaking it piece-wise by public *pessimism* vs public *optimism*, Column 2 reveals the entirety of the effect comes from the pessimism side. Columns 3 and 4 show that pessimism is distinctly associated with cuts in investment and not increases. Columns 5-8 show corresponding inferences from measures of earnings management. This suggests that when managers disclose in a manner that is more pessimistic than internal forecasts, they might do so due to an urgency with which they desire to meet earnings expectations, resulting in cut investment and worsened accounting practices. If this is indeed the correct rationale behind this behavior, we should find that certain types of managers and firms under the most pressure engage in this practice more intensively, which we examine next.

## 3.3 Alternative interpretations

We interpret the empirical results as public forecasts being pessimistic relative to private internal forecasts, which serve as a benchmark. The first and obvious potential re-interpretation of our findings is that public forecasts are unbiased, but government forecasts are biased. We can think of two reasons this might be so. First, firms could be concerned about the tax consequences of confidentially reporting large profits. However, as firms' survey answers are confidential and exempted from legal action, this does not seem plausible. Second, if fiscal policy were guided by the internal forecasts, firms would have an incentive to appear pessimistic in their internal forecasts relative to public forecasts. Fiscal policy typically tends to be counter-cyclical, targeting

areas which perform more poorly. We think it is implausible for firms to expect they can influence fiscal policy through this mechanism as their numbers are highly aggregated when converted into official statistics through the aggregation into industry- or characteristics-based economic outlooks. In addition, both tax and fiscal policy-related explanations would suggest managers should be pessimistic to the government, rather than optimistic, as a manager would want to state low profits either to receive help or to pay lower taxes. Moreover, our forthcoming cross-sectional tests focus on variation between firms in their public reporting incentives, and not in their incentive to report to the government.

A second concern might be that internal forecasts are not made at the same time. Slight asynchronicities may affect the results on the dispersion of forecast errors of public versus internal forecasts, and unfortunately we cannot know exactly when beliefs and forecasts were formed relative to when they were reported. However, Table 1 shows the internal forecasts themselves vary more than public forecasts. The standard deviation of confidential profits forecast within a firm-year is 0.884 while for the public forecast it is 0.793; 76% of the private forecasts contain distinct numbers across the year while only 54% of the public forecasts are distinct within a firm-year. Thus, internal forecasts do not appear stale, but rather appear updated continuously throughout the year. Nonetheless, we further address this potential issue directly in six different ways in A.3. These robustness tests – combined with our cross-sectional tests that do not predict any systematic differences in staleness of internal forecasts but affect the strategic incentive of managers to adjust publicly disclosed forecasts – suggest the staleness of internal forecasts do not drive our observed results.

After establishing there exists a systematic difference between confidential and public forecasts, the following sections studies the determinants of the difference and its implication for real and financial market outcomes.

# 4 Managerial Payoff Sensitivity

## 4.1 Corporate Officer Pecuniary Motives

Based on our framework in Section 2.3, the sensitivity of the CEO's pay to performance, as well as the sensitivity of a CEO's turnover, should modulate disclosure incentives (both captured by $\frac{\partial M}{\partial Bias}$ in our toy model). First, we expect that the shorter the tenure of the CEO, the weaker the CEO with respect to the board. Second, we study the composition of compensation at the firm. Our data is unique because Japan stands out from other developed markets as a place where public firms are not required to report officer compensation and insider trading. However, one useful feature of our data is that it reports both bonuses and salaries for rank-and-file employees and officers. Presumably, such managers with more bonus compensation will be more performance-sensitive,

and therefore more sensitive to meeting expectations.[27] Third, we study future compensation. If managers receive benefits from meeting expectations, they should have higher compensation the following year.

[Table 5]

Table 5 presents two sets of results, first relating the degree of pessimism by the manager to the extent of a CEO's tenure. We obtain data on CEO tenure from Capital IQ People Intelligence which has approximately 50% coverage of our sample.[28] We present four specifications. First, we interact *Public* with *Tenure*, which is the number of years the current CEO has been in their role. Presumably, the longer the CEO has been associated with the company, the greater their job security or power over the board (Pan et al. 2016). Columns 1 and 2 reports the effect of CEO tenure on both profit and sales forecast errors. Columns 3 and 4 report the same but specify CEO tenure as being greater than 7 years, following the conclusion from Pan et al. (2016) that CEOs become more powerful at the 7 year mark. In all specifications, the marginal effect of CEO tenure is negative, consistent with the results on investor holding periods, but are only statistically significant for the specifications involving profit forecast errors. That the specifications are primarily significant for profits is sensible because CEOs are evaluated primarily by profits rather than sales. Column 1 suggests that a CEO that has been in office for ten years is 20% less pessimistic relative to the baseline coefficient of 0.178. Column 3 suggests that a CEO in office for at least 7 years is roughly 60% less pessimistic publicly.

Column 5 exploits our unique compensation data, showing that firms in which corporate officers had a high fraction of total pay coming from bonuses are more publicly pessimistic, verifying hypothesis H2. This could be rationalized in one of two ways. First, if public firm officers are compensated partly in stock, then meeting expectations could potentially increase total compensation through higher share prices. In addition, bonuses might be set to explicitly reward those who beat expectations. Although little is known about Japanese compensation plans, there is evidence of this in the United States (Bennett et al., 2017) and there is no reason not to expect Japanese managers to follow this practice to some degree. While Japan has a high GDP per capita, pay for performance in executive compensation is thought of to be lower in Japan, where executive com-

[27] Otto (2014) finds that overoptimistic CEOs and renumeration interact, and argues that principals can take advantage of the optimistic agents by adjusting their compensation contracts.

[28] Capital IQ People Intelligence is an easily available database with broad coverage of executives worldwide. One key challenge with the database is that it does not have precise dates of CEO exit and entry, particularly for earlier years. Therefore, we code missing CEO start dates with no prior CEO to be founder CEOs. If this assumption is wrong, it does not affect our second set of specifications, which creates a threshold indicator for whether the CEO has been in power for greater than 7 years.

pensation is overall lower.[29] To the extent that pay-for-performance is higher in other countries, we would expect even stronger incentive to distort public forecasts relative to their own beliefs in other contexts. Therefore, the magnitude of executive compensation in driving low-balling is likely greater in the United States or other developed market contexts.

[Table 6]

Next, we examine the relation between forecast pessimism and future compensation. Columns 1-3 show that the total pay per officer, salary per officer, and bonus per officer increase when managers beat their internal forecast projections, verifying the assumption that managers receive a positive payoff when beating public expectations ($\frac{\partial M}{\partial Bias} > 0$). Moreover, the magnitude is over twice as large for bonus per officer and statistically much more reliable (the coefficient of the effect of pessimism on bonus pay is over one standard error larger than the coefficient on salary). This is sensible because if managers were given an executive compensation contract which had a component of pay-for-performance, it would likely be reflected in bonus paid to the officer. Columns 4 and 5 show something of a placebo, which is namely that this disclosure behavior does not seem to increase the pay of rank-and-file employees nearly as much. This finding is reasonable in that officers are usually compensated differently than rank-and-file employees and the decision of how to disclose publicly is likely made by officers.

Finally, Columns 5-8 decompose the findings into public pessimism vs public optimism. If *meeting expectations* drives manager rewards, we expect the benefits to managers to be asymmetrically responsive to managerial pessimism rather than managerial optimism. This is indeed what we find. Columns 5-8 decompose the difference between public and internal forecasts into public optimism (e.g. the public forecast exceeds the internal forecast) and public pessimism, the converse of public optimism. The entirety of the compensation effect occurs when managers are publicly pessimistic, not when they are privately pessimistic.

## 4.2 Shareholder Pressure

To document potential moderating factors of public pessimism, we consider regressions of the form Equation 3 and include interaction terms on the public variable with measures of corporate governance. On one hand, we expect that better corporate governance should discipline corporate managers. On the other hand, as shown in our toy model, higher capital market pressures that

[29] There are many possible reasons for lower pay-for-performance in Japan. Japanese culture places a stigma on executives who profit at the expense of salaried workers. Executives might also be remunerated in other ways. Third, insiders may be allowed to trade and compensate themselves for superior performance. This cannot be studied in the absence of Japanese insider trading data. Fourth, as many western commentators opine, overall corporate governance may simply be weak in Japan. Although Kang and Shivdasani (1995) find that CEO turnover is related to industry performance, Prowse (1992) shows there is high levels of bank ownership and Kaplan and Minton (1994) find that corporate board of directors in Japan play a less important role than in the United States. Claessens and Fan (2002) provide a broader review on the corporate governance issues.

increase managerial payoff for beating expectations or the penalty of missing public forecasts exacerbates the incentive for managers to low-ball to beat forecasts.

First, we present cross-sectional sorts on the degree of capital market pressure. We present two proxies: first, the level of institutional ownership from the prior year, and second, conditional on foreign institutional ownership, the level of institutional ownership *distraction*. Institutional investor distraction is a concept proposed in Kempf et al. (2017), using a measure that compares two firms within the same industry-year, but who have institutional investors distracted by events in other industries. Our key modification stems now from the international nature of our data. We only look at distractions that come from not just other industries, but *other countries*. We describe the construction of this shock in Appendix A.2.

Our exclusion restriction relies on the idea that controlling for (1) pre-determined institutional ownership and (2) industry-time fixed effects, shocks to investor attention are random. Investors only differ by the extent to which a shock precipitated in another industry, and in another country. The exclusion restriction would be violated if the investor anticipated being distracted and chose the focal firm because they will produce less biased forecasts in a future year. Our statistics are similar to those reported in Kempf et al. (2017).[30]

[Table 7]

Table 7 presents our results using the specification in Equation 3 and including the interaction of the public forecasts with governance measures. Column 1 studies whether public pessimism is correlated with the level of institutional ownership, and Column 2 breaks institutional ownership into domestic versus foreign components, and explores whether foreign owner distraction, conditional on foreign institutional ownership, affects public pessimism. The coefficients on foreign institutional ownership are positive, but insignificant. The results suggest that foreign institutional owner distraction is correlated with less pessimism. Column 3 then studies institutional investor distraction. This suggests when investors have events in other industries and other countries, they exert less pressure on Japanese governance. This results in less pressure, and less pessimism. If managers are managing earnings and sales to just beat targets rather than making pessimistic public forecasts, we would expect better corporate governance to mitigate earnings manipulation, or a decrease in measured public pessimism. However, we find the opposite. Column 4 shows this result to be stronger in the last 6 months of the fiscal year, suggesting that when investors are distracted, the pressure to distort earnings forecasts is lower. Therefore, hypothesis H3 appears supported in the data.

[30] Our average level of distraction is 0.16, matching Kempf et al. (2017) closely. This is interesting although we use different data (international) with a slightly different sampling procedure, considering only distraction originating from foreign firms. This is partly true by construction as their data are based on mixtures of quantile ranks, and so it is unsurprising we have similar dispersion and means in our variables.

Although foreign institutional owners are usually associated with superior corporate governance, they may induce additional focus on short-term performance. Column 5 explores whether the firm is a *family firm*, or Keiretsu. We use hand-collected data that provide status on publicly listed family firms up to 2004, the start of our sample. Although we do not have this data through 2017, this is not a large problem because the status of being a family firm hardly changes over time. In family firms, pressure to be pessimistic is arguably larger because of social motives to meet expectations. Therefore, we expect family firms to low-ball more.

Columns 6-9 examine the investor holding horizon, following prior literature that suggests short-term shareholders drive different firm responses rather than long-term shareholders who place different demands on firm management. The variable *Holding Period* describes the fraction of investors weighted by holdings who have held the stock for at least 1 year, 2 years, 3 years and 4 years (corresponding to Columns 5-8). We stop at four years because Factset Lionshares begins coverage in 2000, four years before our sample begins in 2004. When the fraction of managers who have held the stock for 1 year is higher, managers are somewhat less pessimistic but this is not statistically different from zero. When we increase the threshold from 1 to 2, 3 and 4 years the interaction term grows more negative and more statistically reliable in a monotonic fashion. In these regressions, we interact *Public* with the number of institutional investors, thereby controlling for the overall effects of institutional ownership.

## 4.3 Financial Market Outcomes

Using regressions from Equation 4, Table 8 shows whether the forecast errors from the internal forecasts and whether public forecast pessimism affects financial market outcomes. The columns present variations of the decomposition but with different outcome variables. The first two columns present earnings surprises, which we define as standardized unexpected earnings (SUE) taken from the analyst forecast consensus summary file from I/B/E/S.[31] Column 1 shows that firms' confidential survey forecast errors – a proxy for the manager's own misperception of their future profits – drive part of *SUE*. However, a substantial portion can be attributed to the manager underestimating their profits publicly. The coefficients are similar. Column 2 repeats this analysis for the extensive margin analysis. A standard deviation increase in internal forecast errors or public forecast pessimism leads to a 5% increased chance of beating public forecasts. This analysis only covers stocks with three analysts in I/B/E/S, but we find similar results if we study the extensive margin including all stocks with at least one analyst submitting a forecast. Overall, this suggests analysts' views are shaped by managers' practice of public pessimism.

[Table 8]

[31] We require at least three analyst forecasts to be included as the SUE measure requires one to calculate a standard deviation. Not all stocks have three analysts and I/B/E/S does not have perfect coverage of all earnings announcements in Japan, therefore our observation count is lower than for other outcome variables.

We next test if markets understand that public forecasts are managed. Rational markets should display no reaction ($\beta = 0$). However, we find that markets in fact positively react at announcement time. Columns 3 and 4 present the returns/market-adjusted returns to the stock averaged (per literature convention) over the day before and the two days after the earnings announcement. Forecast pessimism is significantly positively related to announcement returns, thereby validating hypothesis H4. In unreported analysis, we conduct this analysis extending the post-announcement period. In untabulated results, we re-run this analysis for every ten day horizon up to two months out and find no evidence of reversal.

Panel B repeats the analysis disaggregating the Public-Internal forecast gap by whether the manager was publicly pessimistic or optimistic relative to the private forecast. The capital market outcomes are borne entirely from pessimism, not optimism. Across specifications, pessimism is 50% more important for earnings surprises and 3 to 10 times more important for return reactions. The coefficient on optimism is never significant. The coefficient on public pessimism is 0.5 to 10 times larger and statistically more precise than the coefficient on optimism.[32]

# 5 Firm Financial Condition

If managers extract benefits from pessimism, a natural question is if markets would eventually *learn* to see through managers' tendencies. If markets learn of this tendency to low-ball and adjust for it, then managers have very little to gain because in equilibrium, as the benefits to low-balling would erode. Of course, it is equally possible that markets might not ever learn managers' tendencies because the internal forecasts we observe as econometricians are unobserved by markets. However, one potential obstruction to markets learning this tendency is that over time, managers might change their behavior for various reasons in a way that is dynamically related to their financial condition. Per our framework, managers may become publicly optimistic if they anticipate a possibility of needing a secondary equity offering due to financial constraints ($\Pr(c < I)$), because increasing public optimism should increase equity prices in the interim ($\frac{\partial P_1}{\partial \hat{\pi}^{Public}} \geq 0$). A higher equity valuation reduces the cost of issuance, and as such optimism alleviates financial constraints. Thus, we expect forecast pessimism to reduce the likelihood of equity-dependent actions and to be likelier when the firm is not financially constrained.

[Table 9]

Table 9 presents our results using the specification in Equation 3, including the interaction of public forecasts with several measures of financial constraints. Column 1 presents results relating the firm's level of cash to the degree of pessimism. Of course, while cash might be correlated with

[32] In unreported analysis, we conduct a local non-parametric regression discontinuity design, finding that firms cut investments in order to "just beat" their profit forecasts. This appears present among publicly listed firms, but absent among unlisted firms.

other firm characteristics that might also reflect pessimism, firms with relatively large cash position are presumably in better financial condition. The result suggests that firms with more cash are more pessimistic in their forecasts. The coefficient is standardized, so the coefficient of 0.2 leads to a 20% increase in pessimism. In unreported results, we find a similar, if not stronger, relation between cash and sales pessimism. Second, we present results using our measure of financial constraints. The BOS asks firms to list their primary business concern among nine choices. We flag when the firm identifies "financing conditions" as their top concern. In unreported analysis, we find evidence that such a measure behaves like a financial constraints measure, and is negatively correlated to cash and size but positively related to debt. As hypothesized, firms which are financially constrained are less pessimistic. The estimated coefficient suggests that firms are likelier to be aggressive and overly optimistic publicly rather than pessimistic when they confidentially report to be financially constrained. Column 2 reports a baseline coefficient of 0.135, reflecting that the public forecast error is more positive. When the firm is financially constrained, the public forecast error is -0.713% more negative, suggesting a *quadrupling* of the main effect in the *opposite direction*. That is, more financially constrained firms are actually publicly optimistic relative to internal forecasts while non-constrained firms are publicly pessimistic, validating hypothesis H5.

Next, Columns 3 and 4 reveal results on lending attitude and financial conditions, respectively. We find that improvement in lending attitude and financial condition both lead to higher public pessimism. While the signs of the coefficients support our hypothesis, the coefficients are not statistically significant. The noisiness of the estimate is not surprising as expecting lending attitudes to improve or deteriorate does *not* imply one is necessarily financially constrained, but the qualitative question simply reflects an opinion on market conditions without focusing on the firm's situation directly. Therefore, the magnitude is attenuated because both constrained and unconstrained firms may perceive lending attitudes to be improving as well, yet such firms would engage in opposite behaviors. Finally, we study whether equity-dependent firms appear to strategically make public expectations in Columns 5 and 6. Column 5 reveals that equity-dependent firms which are financially constrained tend to be more pessimistic on average. Refining this result further, Column 6 reveals that equity-dependent firms, in particular, have the strongest incentive to be *optimistic* instead when financially constrained. Equity-dependent firms are almost by definition among the most sensitive to capital market conditions, and therefore should have the strongest incentive to strategically disclose in order to gain an advantage in capital markets.

Relatedly, we study the impact of the forecast gap on future corporate actions using an empirical specification based on equation 4 which breaks out the internal forecast errors and a public pessimism term. We focus on two in particular: M&A and issuance. On the margin, firms should engage in these types of corporate actions when equity prices are lower.

Panel B in Table 9 shows our results on issuance. We only use outcomes using data starting

in July (the fiscal year starts in April, and the first forecasts are made before July). Again, we decompose the forecast error into $\varepsilon_{\text{Internal}}$ and Public Pessimism, defined as the level of public pessimism relative to the internal forecasts. This allows us to attribute the findings between a manager's own internal forecast error. First, a manager's intent is very significant, as measured by the coefficient on Public Pessimism. Interestingly, unlike the prior analysis, internal $FE_{i,t}^{Profits}$ is not significant. This is sensible as a firm's internal forecast error should not relate to a future *intended* corporate decision, whereas we should observe such a relationship on the coefficient on their intended pessimism. In unreported tests, we do not find statistically significant results for repurchases, which we believe to be plausible for many reasons. While repurchases are subject to measurement noise, the asymmetric lack of response in repurchases for unconstrained firms is consistent with the view that managers are motivated to distort public forecasts for personal benefit rather than for company benefit.[33]

Finally, in Section A.5, we study whether a firm's prior performance affects their public pessimism, perhaps because they want to avoid persistently biasing public forecasts in one direction to maintain their reputation. Contrary to Kato et al. (2009), we find that firms that performed well last year and those that were publicly pessimistic last year are less publicly pessimistic this year, consistent with reputational concerns.

# 6 Conclusion

In this paper, we document that public firm-level forecasts made by Japanese managers are typically more conservative than internal forecasts. The difference is substantial. Accounting for variation in corporate investment, market returns, and earnings surprises, managers alter real firm decisions as a consequence of public disclosure. The results are consistent with managers optimally responding to standard corporate governance incentives, with variation driven by pay-performance sensitivity, institutional ownership, and ownership structure. The relation is dynamic, as managers even overstate their expected profits when financially constrained or based on past performance. The results are consistent with equity-dependent managers anticipating their financial situations, but otherwise managing shareholder expectations down in order to beat forecasts.

Our results have several implications for existing literature. For the expectations literature, our results point out an example where reported expectations may differ under varying incentives. Our results reveal the possibility of lurking biases in reporting, particularly if numbers must be made public or scrutinized as a goalpost for managers, and provide a baseline economic magnitude.

[33] First, statistically, it is much harder to observe repurchases data. While repurchases are announced by companies, one must infer issuance amounts from financial statements, which is noisier. Second, economically, we expect asymmetric behavior between issuance and repurchases: an abundance of cash does not necessarily hinder operations, whereas issuance does. Thus, we argue it is sensible to not observe a result on repurchases. In addition, given that we observe weaker results for repurchases, this suggests the primary reason managers convey lower earnings publicly is that they seek personal benefits rather than benefits to the company.

For the finance and accounting literature, our results reveal an interesting connection between financial constraints and executive compensation. Regardless of whether the disclosure in question is a profitability forecast and whether the manager is Japanese, managers always have competing incentives to low-ball (capital market pressure) and to high-ball (financial constraints). This paper is the first to illustrate this particular strategic tradeoff that managers make. Moreover, we believe this finding generalizes. Because Japan is a context where pay-for-performance incentives are thought of to be "too low", we expect this behavior to be even more pronounced in other developed market contexts.

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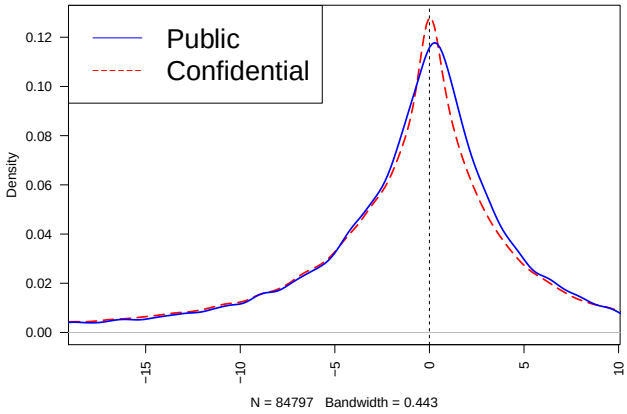
# Tables and Figures

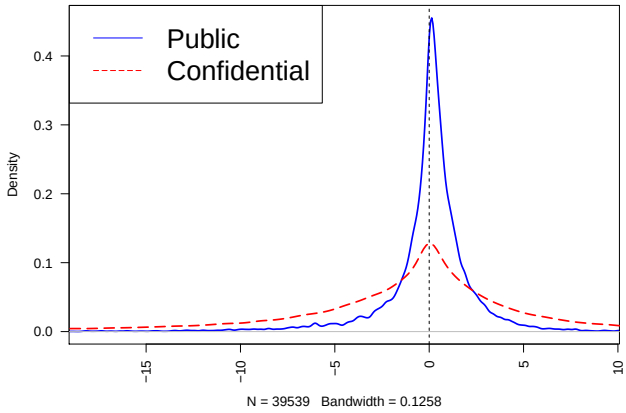
Figure 1: Histogram of Forecast Errors

The figures below show the histogram of the kernel densities of sales and profits errors split by whether the forecasts were public or confidentially reported to the government. Sales forecast errors are defined as realized minus expected sales deflated by realized sales and profits forecast errors are defined as realized minus expected profits deflated by realized sales, both scaled by 100.

(a) Sales Forecast Errors




(b) Profit Forecast Errors



## Table 1: Summary Statistics

This table presents publicly audited financials for the full sample of Japanese listed versus those firms who we matched to the Ministry of Finance Business Outlook Survey. For forecast errors, $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit - expected profit divided by realized sales, multiplied by 100. $FE^{\text{Sales}}$ is the forecast error of sales, defined as realized minus expected sales deflated by realized sales, multiplied by 100.

| Variable | Mean | SD | $25^{th}$ | $50^{th}$ | $75^{th}$ |
|---|---|---|---|---|---|
| Horizon $\geq$ 6 Month for: | | | | | |
| Public $FE^{\text{Profits}}$ | -0.311 | 3.614 | -1.063 | 0.116 | 1.167 |
| Internal $FE^{\text{Profits}}$ | -0.401 | 4.324 | -1.226 | 0.049 | 1.234 |
| Public $\mid FE^{\text{Profits}} \mid$ | 2.164 | 2.960 | 0.436 | 1.121 | 2.612 |
| Internal $\mid FE^{\text{Profits}} \mid$ | 2.511 | 3.542 | 0.469 | 1.231 | 2.918 |
| Public $FE^{\text{Sales}}$ | -2.208 | 10.039 | -5.582 | -0.643 | 3.122 |
| Internal $FE^{\text{Sales}}$ | -2.868 | 11.605 | -6.501 | -1.041 | 3.133 |
| Public $\mid FE^{\text{Sales}} \mid$ | 6.769 | 7.765 | 1.791 | 4.242 | 8.679 |
| Internal $\mid FE^{\text{Sales}} \mid$ | 7.772 | 9.083 | 1.977 | 4.693 | 9.831 |
| Horizon $<$ 6 Months for: | | | | | |
| Public $FE^{\text{Profits}}$ | -0.038 | 2.521 | -0.524 | 0.168 | 0.894 |
| Internal $FE^{\text{Profits}}$ | -0.262 | 3.639 | -0.856 | 0.062 | 0.950 |
| Public $\mid FE^{\text{Profits}} \mid$ | 1.471 | 2.158 | 0.286 | 0.734 | 1.662 |
| Internal $\mid FE^{\text{Profits}} \mid$ | 1.958 | 3.078 | 0.335 | 0.906 | 2.161 |
| Public $FE^{\text{Sales}}$ | -1.251 | 6.655 | -3.157 | -0.169 | 1.980 |
| Internal $FE^{\text{Sales}}$ | -2.182 | 9.450 | -4.439 | -0.609 | 2.125 |
| Public $\mid FE^{\text{Sales}} \mid$ | 4.313 | 5.343 | 1.014 | 2.490 | 5.363 |
| Internal $\mid FE^{\text{Sales}} \mid$ | 1.958 | 3.078 | 0.335 | 0.906 | 2.161 |

| Variable | Mean | SD | $25^{th}$ | $50^{th}$ | $75^{th}$ |
|---|---|---|---|---|---|
| Firm Fundamentals: | | | | | |
| Total Sales (bn) | 110.22 | 243.90 | 14.19 | 35.02 | 89.14 |
| Total Assets (bn) | 155.39 | 437.72 | 17.65 | 38.30 | 93.08 |
| Ordinary Profits (EBIT) (bn) | 5.89 | 15.96 | 0.41 | 1.42 | 4.32 |
| Net Capital Investment (bn) | 0.19 | 4.85 | -0.40 | -0.05 | 0.32 |
| No. of Employees (thousands) | 1.66 | 2.98 | 0.31 | 0.67 | 1.54 |
| Total Labor Costs (bn) | 11.15 | 22.07 | 1.94 | 4.34 | 10.07 |
| Long-Term Debt (bn) | 22.01 | 19.37 | 4.69 | 18.17 | 34.87 |
| Asset Tangibility | 0.29 | 0.19 | 0.15 | 0.27 | 0.40 |
| Market-to-Book | 1.17 | 0.64 | 0.84 | 1.00 | 1.25 |
| R&D/Asset (%) | 1.04 | 1.77 | 0.00 | 0.11 | 1.34 |
| Cash/Asset (%) | 0.30 | 0.70 | 0.00 | 0.10 | 0.20 |

| Variation in Within-Firm-Year Forecasts: | | | |
|---|---|---|---|
| Forecast Type | Variable | SD | P(Distinct) |
| Public | Profits | 0.793 | 0.543 |
| Internal | Profits | 0.884 | 0.760 |
| Public | Sales | 2.480 | 0.533 |
| Internal | Sales | 2.862 | 0.750 |

Table 2: Forecasts and Corporate Policy

The table below shows the main results studying the relation between corporate investment rates and profit forecasts. Profit forecasts are scaled by total assets and investment rates are defined as the capital expenditure scaled by previous period's net property, plant and equipment. We winsorize all variables at the 1% and 99% levels. Both the control variable and independent variables are z-scored. Observations are at the firm-by-fiscal year level. Fixed effects are shown in the row with the "FE" prefix. Standard errors are clustered by year and are shown in parentheses. * signifies $p < 0.1$, ** signifies $p < 0.05$, and *** signifies $p<0.01$.

| *Dependent variable:* | Investment Rate | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Internal Profit Forecast | 0.159*** | | 0.188*** | 0.212*** | 0.185*** | 0.141*** |
| | (0.026) | | (0.027) | (0.023) | (0.021) | (0.022) |
| Internal Sales Forecast | | 0.159*** | | | | |
| | | (0.002) | | | | |
| FE: Industry-year | ✓ | ✓ | ✓ | | | ✓ |
| FE: Firm | | | | ✓ | ✓ | ✓ |
| FE: Year | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Controls | | | ✓ | | ✓ | ✓ |
| Observations | 7,970 | 7,986 | 7,969 | 7,970 | 7,969 | 7,991 |
| $R^2$ | 0.262 | 0.240 | 0.185 | 0.602 | 0.609 | 0.552 |

## Table 3: Main Results

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. $FE^{\text{Sales}}$ is the forecast error of sales, defined as realized minus expected sales deflated by realized sales, multiplied by 100. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. All regressions include a cubic control for the forecast horizon in months, which we suppress for space. All specifications use firm-by-year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

Panel A: Profit Forecast Errors

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| *Dependent variable:* | $sign(FE^{\text{Profits}})$ | | $FE^{\text{Profits}}$ | | $\log\left(1+\lvert FE^{\text{Profits}}\rvert\right)$ | |
| Public | 0.048*** | 0.045*** | 0.103*** | 0.086*** | -0.061*** | -0.048*** |
| | (0.005) | (0.006) | (0.020) | (0.023) | (0.004) | (0.005) |
| FE: Firm-Year | ✓ | | ✓ | | ✓ | |
| FE: Firm-Half-Year | | ✓ | | ✓ | | ✓ |
| Observations | 90,940 | 90,940 | 90,940 | 90,940 | 90,940 | 90,940 |
| $R^2$ | 0.797 | 0.916 | 0.820 | 0.927 | 0.846 | 0.933 |

Panel B: Extensive Margin ($sign(FE^{\text{Profits}})$)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Public | 0.023*** | 0.018** | 0.031*** | 0.099*** | 0.065*** |
| | (0.006) | (0.008) | (0.012) | (0.009) | (0.009) |
| Public × Medium Horizon | 0.004 | | | | |
| | (0.006) | | | | |
| Public × Long Horizon | 0.003 | | | | |
| | (0.009) | | | | |
| Sample | All | Horizon ∈ (9,12] | Horizon ∈ (6,9] | Horizon ∈ (0,6] | Sales ≥ 70 bn |
| Observations | 90,940 | 27,506 | 25,999 | 37,435 | 67,615 |
| $R^2$ | 0.789 | 0.979 | 0.971 | 0.904 | 0.808 |

Panel C: Intensive Margin ($FE^{\text{Profits}}$)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Public | 0.065*** | 0.041 | 0.061 | 0.174*** | 0.075*** |
| | (0.024) | (0.032) | (0.046) | (0.029) | (0.027) |
| Public × Medium Horizon | -0.017 | | | | |
| | (0.025) | | | | |
| Public × Long Horizon | -0.045 | | | | |
| | (0.032) | | | | |
| Sample | All | Horizon ∈ (9,12] | Horizon ∈ (6,9] | Horizon ∈ (0,6] | Sales ≥ 70 bn |
| Observations | 90,940 | 27,506 | 25,999 | 37,435 | 67,615 |
| $R^2$ | 0.820 | 0.980 | 0.975 | 0.907 | 0.845 |

## Table 4: Earnings Management

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts. $FE$ stands for forecast error for the relevant variable denoted on superscripts. he first confidential sale and profit forecasts are from the first quarter in the fiscal year. Observations are at firm-year level. Columns 1-4 study the relation between initial year pessimism and end-of-year outcomes regarding forecsasted investment. $FE^{\text{Invest}}$ is the forecast error relative to sales, with a positive value indicating greater investment than planned. Columns 5-8 show the relation between accounting-based measures of non-discretionary accruals as a percentage of previous fiscal year end's total assets, a proxy for the ability of managers to do earnings management. A more negative value of non-discretionary accruals as a percentage of previous fiscal year's total assets is interpreted as a firm having more potential for earnings manipulation. All specifications include firm and year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| | Investment forecast errors | | | | Measure of $\frac{\text{Discretionary Accrual}_t}{\text{Total Assets}_{t-1}}$ based on... | | | |
|---|---|---|---|---|---|---|---|---|
| *Dependent variable:* | $Investment - \mathbb{E}[Investment]$ | | Cut Investment | Increase Investment | Jones | Jones Modified | Earnings Industry | Earnings Healy |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Public-Internal Forecast Gap | -0.070** | | | | | | | |
| | (0.034) | | | | | | | |
| Public Pessimism | | -0.002*** | 0.037*** | -0.021*** | 0.100*** | 0.050*** | 0.010*** | 0.005 |
| | | (0.0003) | (0.003) | (0.004) | (0.010) | (0.010) | (0.00003) | (0.010) |
| Public Optimism | | 0.001 | 0.016 | -0.077** | 0.030 | 0.001 | 0.020 | 0.003 |
| | | (0.004) | (0.017) | (0.032) | (0.100) | (0.030) | (0.030) | (0.030) |
| Internal $FE^{\text{Profits}}$ | 0.025* | 0.036*** | -0.613*** | 0.628*** | 0.100*** | 0.100** | 0.010 | 0.005 |
| | (0.013) | (0.012) | (0.199) | (0.208) | (0.030) | (0.030) | (0.010) | (0.010) |
| Observations | 7,271 | 7,271 | 7,271 | 7,271 | 3,962 | 3,935 | 3,963 | 3,963 |
| $R^2$ | 0.319 | 0.320 | 0.297 | 0.297 | 0.461 | 0.483 | 0.688 | 0.942 |

Table 5: Public Pessimism, CEO Tenure, and Executive Compensation

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts with measures of CEO compensation and tenure. CEO tenure is retrieved from Capital IQ and bonus share is the fraction of total officer or firm compensation that comes in the form of bonus (the other component is salary) as reported to the Ministry of Finance from the prior year. All regressions include cubic controls of the forecast horizon in months, suppressed for space. All regressions also include firm-by-fiscal year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| *Dependent variable:* | $FE^{\text{Profit}}$ | $FE^{\text{Sales}}$ | $FE^{\text{Profit}}$ | $FE^{\text{Sales}}$ | $FE^{\text{Profit}}$ | |
| CEO Factor = | Tenure | | $1\{Tenure \geq 7\}$ | | $BonusShare_{t-1}^{Officers}$ | $BonusShare_{t-1}^{Firm}$ |
| Public | 0.178*** | 0.477*** | 0.182*** | 0.446*** | 0.088** | 0.060* |
| | (0.044) | (0.123) | (0.052) | (0.131) | (0.028) | (0.028) |
| Public × Factor | -0.003** | -0.002 | -0.112* | -0.045 | 0.410* | 0.514** |
| | (0.001) | (0.004) | (0.060) | (0.151) | (0.221) | (0.205) |
| Observations | 53,584 | 53,733 | 53,584 | 53,733 | 77,882 | 77,8825 |
| $R^2$ | 0.818 | 0.788 | 0.818 | 0.788 | 0.824 | 0.824 |

## Table 6: Public-Private Forecast Gap and Labor Market Outcomes

The table below shows the main results studying the impact of the public-internal forecast gap, defined as the public earnings forecast minus the confidentially made forecasts, on corporate pay the following fiscal fiscal year. For a forecast gap observed at fiscal year $t$, we study the compensation at time $t+1$. Outcome variables are transformed by taking the log of the variable plus one. Observations are at the firm-by-fiscal year level.All regressions include firm and fiscal year fixed effects, and includes the following firm controls: log past fiscal year's total assets, lagged cash to assets, logged past number of employees plus one, and lagged long-term book leverage to total assets. Standard errors are clustered by year and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Dependent variable:* | Total Pay /Officer | Salary /Officer | Bonus /Officer | Salary /Employee | Bonus /Employee | Total Pay /Officer | Salary /Officer | Bonus /Officer |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Internal $FE^{\text{Profits}}$ | 0.764*** | 0.533*** | 1.582*** | 0.238*** | 0.720*** | 0.763*** | 0.532*** | 1.580*** |
| | (0.110) | (0.101) | (0.514) | (0.072) | (0.104) | (0.109) | (0.101) | (0.511) |
| Public - Internal Forecast Gap | 0.938** | 0.837** | 1.517** | 0.193 | 0.663* | | | |
| | (0.399) | (0.379) | (0.746) | (0.256) | (0.391) | | | |
| Public Pessimism | | | | | | 1.351*** | 1.094** | 2.249** |
| | | | | | | (0.475) | (0.468) | (1.030) |
| Public Optimism | | | | | | 0.259 | 0.414 | 0.316 |
| | | | | | | (0.723) | (0.695) | (1.050) |
| Observations | 7,688 | 7,688 | 7,688 | 7,561 | 7,561 | 7,688 | 7,688 | 7,688 |
| $R^2$ | 0.856 | 0.848 | 0.656 | 0.816 | 0.835 | 0.856 | 0.848 | 0.656 |

## Table 7: Governance and Public Pessimism

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts based on various measures of ownership. Foreign institutional owner distraction is a modified version of the Kempf et al. (2017) measure, and more details on the variable construction can be found in Appendix A.2. Because of our institutional investor construction, we restrict the sample to only to firms with greater than zero foreign institutional ownership. Distraction is defined as the absolute 12-month return being in the top half or top 1/3rd. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. Column (4) indicates whether a firm is a family-owned firm. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. Columns (5)-(8) interact *Public* with the fraction of investors who have held the stock longer than 1, 2, 3 and 4 years. All regressions include cubic controls of the forecast horizon in months, suppressed for space. All regressions also include firm-by-fiscal year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Dependent variable:* | $FE^{\text{Profit}}$ | | | | | $FE^{\text{Profit}}$ | | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Governance Type = | Insttutional Ownership | Institutional Ownership | Institutional Distraction All | Institutional Distraction <6mo | Family Ownership | Holding Period At Least... 1 year | 2 years | 3 years | 4 years |
| Public | 0.012*** | -0.007 | 0.078** | 0.082* | 0.060** | 0.138** | 0.127** | 0.127** | 0.123** |
| | (0.024) | (0.029) | (0.034) | (0.049) | (0.025) | (0.062) | (0.053) | (0.057) | (0.054) |
| Public × Governance Measure | 0.059** | 2.538*** | | | 0.029** | | | | |
| | (0.024) | (0.905) | | | (0.012) | | | | |
| Public × Institutional Distraction | | | -0.438** | -0.532** | | | | | |
| | | | (0.155) | (0.225) | | | | | |
| Public × Holding Period | | | | | | -0.130 | -0.142* | -0.189** | -0.228*** |
| | | | | | | (0.089) | (0.085) | (0.085) | (0.083) |
| Public × Log(% Institutional Investors) | | | | | | 0.011 | 0.012 | 0.013 | 0.013 |
| | | | | | | (0.015) | (0.015) | (0.014) | (0.015) |
| Observations | 91,851 | 73,300 | 63,063 | 26,178 | 73,300 | 77,582 | 77,582 | 77,582 | 77,582 |
| $R^2$ | 0.820 | 0.816 | 0.816 | 0.894 | 0.816 | 0.821 | 0.821 | 0.821 | 0.821 |

Table 8: Public-Private Forecast Gap and Financial Market Outcomes

The table below shows the main results studying the impact of the public-internal forecast gap, defined as the public earnings forecast minus the confidentially made forecasts, on surprised unexpected earnings and earnings announcement returns. We winsorize the forecast gap at the 1%. Column (1) studies the surprise unexpected earnings (SUE), winsorizing at the 2% level. Column 3 in both panels study the 3-day cumulative abnormal return around the earnings announcement date. Column 4 studies the return in the four quarters after the quarter in which the forecast was observed. Both include firm fixed effects to account for firm-specific risk exposures. Observations are at the firm-by-fiscal year level. All regressions include controls for the log number of analysts, log previous fiscal year's total assets, and lagged asset tangibility as well as industry-by-year fixed effects. The "FE" row denotes additional fixed effects depending on column, and columns (1) and (2) in both panel include the following firm controls: log number of analysts, log past fiscal year's total assets, lagged capital expenditures relative to total assets. Columns (3) and (4) in both panel include lagged assets as firm controls. Standard errors are clustered by firm and month for columns (1) to (3) and firm and year for column (4) and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| Panel A: Public-Internal Forecast Gap | | | | |
|---|---|---|---|---|
| *Dependent variable:* | SUE | $I(SUE > 0)$ | Return[-1,2] | Next Year Returns (%) |
| | (1) | (2) | (3) | (4) |
| Internal $FE^{\text{Profits}}$ | 0.197*** | 0.058*** | 0.063 | 9.131*** |
| | (0.055) | (0.012) | (0.064) | (1.186) |
| Public-Internal Forecast Gap | 0.235** | 0.054*** | 0.256*** | 2.359*** |
| | (0.105) | (0.021) | (0.087) | (0.709) |
| Observations | 2,105 | 2,105 | 2,375 | 8,240 |
| $R^2$ | 0.222 | 0.235 | 0.310 | 0.465 |
| Panel B: Public Pessimism vs. Public Optimism | | | | |
| *Dependent variable:* | SUE | $I(SUE > 0)$ | Return[-1,2] | Next Year Returns (%) |
| | (1) | (2) | (3) | (4) |
| Internal $FE^{\text{Profits}}$ | 0.190*** | 0.057*** | 0.062 | 9.126*** |
| | (0.052) | (0.012) | (0.064) | (1.182) |
| Public Pessimism | 0.446* | 0.052 | 0.423** | 2.572** |
| | (0.231) | (0.037) | (0.179) | (1.143) |
| Public Optimism | -0.295 | 0.014 | 0.157 | -0.261 |
| | (0.220) | (0.037) | (0.145) | (1.105) |
| Observations | 2,105 | 2,105 | 2,375 | 8,240 |
| $R^2$ | 0.224 | 0.235 | 0.310 | 0.465 |

# Table 9: Financial Constraints and Expected Economic Conditions

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts with measures of financial constraints and also the impact of the public pessimism on corporate issuances and M&A activity. In Panel A, Column (1) studies the impact of the percentile rank of laged cash holdings relative to total assets across the sample period, a specification which mitigates outliers. Column (2) studies whether the firm believes financing is an important determinant of their business outcomes in the next quarter. Column (3) and (4) study whether the firm believes the next quarter's lending conditions and financial conditions improve respectively. Columns (5) and (6) study whether equity-dependent firms are differentially affected by their perceptions of financial conditions. Panel B shows the impact of the internal forecast errors and the public-internal forecast pessimism gap on corporate issuances and M&A activity. The outcome variable in Column (1) is an indicator of whether the firm announces a secondary equity issuance in the same year as the forecast, the outcome variables in Column (2) and (3) are the ratio of the issuance amount scaled by lagged totaled assets and lagged cash assets respectively, and the outcome variable in Column (4) is an indicator of whether the firm has any M&A activity. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. Observations in Panel A are at the firm-horizon-fiscal year-forecast type level and in Panel B are at the firm-year level. Panel A includes firm-by-year fixed effects and Panel B includes firm and year fixed effects as well as controls for firm fundamentals, including lagged log total assets, log foreign and domestic institutional ownership, Tobin's Q, and lagged cash to total assets. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

Panel A: Short-Term Financial Constraints

| *Dependent variable:* | $FE^{\text{Profit}}$ | | | | | |
|---|---|---|---|---|---|---|
| Sources: | Financial Stmt | Survey response by the firm | | | | |
| Financial Constraints Measure = | Cash | Financial Constraint | Improving Lending Attitudes | Improving Financial Conditions | Constrained Dependent | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Public | 0.529*** | 0.135*** | 0.139*** | 0.140*** | 0.108*** | 0.124*** |
| | (0.065) | (0.024) | (0.024) | (0.024) | (0.021) | (0.022) |
| Public × Factor | 0.326** | -0.713** | -0.051 | -0.072 | | 0.370 |
| | (0.161) | (0.340) | (0.065) | (0.059) | | (0.023) |
| Public × Equity Dependent | | | | | 0.710* | 0.877* |
| | | | | | (0.413) | (0.454) |
| Public × Factor × Equity Dependent | | | | | | -1.911*** |
| | | | | | | (0.457) |
| Observations | 85,650 | 70,338 | 70,338 | 70,338 | 82,007 | 70,338 |
| $R^2$ | 0.787 | 0.799 | 0.827 | 0.827 | 0.823 | 0.827 |

Panel B: Secondary Equity Issuances and Mergers & Acquisitions

| *Dependent variable:* | $I(SEO_t)$ | $\frac{\text{Amount Issued}_t}{\text{Total Assets}_{t-1}}$ | $\text{M\&A}_t$ | $I(SEO_{t+1})$ | $\frac{\text{Amount Issued}_{t+1}}{\text{Total Assets}_t}$ |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Internal $FE^{\text{Profits}}$ | -0.036 | -0.001 | -0.002* | -0.002 | -0.011 |
| | (0.106) | (0.006) | (0.001) | (0.001) | (0.007) |
| Public Pessimism | -0.622** | -0.032** | -0.006 | -0.001 | -0.001 |
| | (0.284) | (0.016) | (0.004) | (0.003) | (0.017) |
| Observations | 7,944 | 7,944 | 7,944 | 7,944 | 7,944 |
| $R^2$ | 0.246 | 0.252 | 0.325 | 0.235 | 0.251 |

# Online Appendix

# A Additional Details and Robustness

## A.1 Sample Characteristics

Table A.2 reports a comparison of summary stats between the firms in our sample based on publicly audited financials, the broader universe of Japanese listed firms, and the sample of non-responding firms. Compared to the full sample, our main Ministry of Finance sample is slightly larger in terms of assets, more debt, research and development relative to total assets, and also tend to have a slightly lower Tobin's Q. The other variables are similar. To the extent we believe firm size and access to capital might matter in driving firm expectations, these summary statistics alleviate any concerns that our sample selection bakes in an embedded selection bias.

Moreover, we also do not observe any large differences between the non-responding firm sample. Compared to the non-responding sample, our main sample has slightly more dividend yield and slightly less variation in dividend yields. However, all these differences are smaller than the difference between the main sample and universe of Japanese publicly listed firms.

Table A.1: Data Coverage by Year and Industry

The table below shows the data coverage in terms of the number of unique firms, number of forecasts, as well as the average number of forecasts which includes both public and private forecasts, split by year, forecast horizon, and industry based on J-SIC-1 digits.

| Panel A: Data Coverage by Year | | | | Panel B: Data Coverage by Forecast Horizon | | | |
|---|---|---|---|---|---|---|---|
| Year | No. Firms | No. Forecasts | $\frac{\text{Num Forecasts}}{\text{Firm}}$ | Forecast Horizon | No. Firms | No. Forecasts | $\frac{\text{Num Forecasts}}{\text{Firm}}$ |
| 2004 | 1,780 | 8,966 | 5.0 | 0 | 1,004 | 4,155 | 4.1 |
| 2005 | 1,833 | 10,810 | 5.9 | 1 | 1,168 | 5,232 | 4.5 |
| 2006 | 1,821 | 10,635 | 5.8 | 2 | 707 | 2,774 | 3.9 |
| 2007 | 1,813 | 10,371 | 5.7 | 3 | 102 | 108 | 1.1 |
| 2008 | 1,820 | 11,025 | 6.1 | 4 | 2,762 | 28,946 | 10.5 |
| 2009 | 1,842 | 10,467 | 5.7 | 5 | 937 | 1,490 | 1.6 |
| 2010 | 1,845 | 10,733 | 5.8 | 6 | 920 | 3,492 | 3.8 |
| 2011 | 1,813 | 9,793 | 5.4 | 7 | 2,748 | 23,483 | 8.5 |
| 2012 | 1,811 | 9,516 | 5.3 | 8 | 965 | 4,204 | 4.4 |
| 2013 | 1,800 | 9,334 | 5.2 | 9 | 734 | 2,874 | 3.9 |
| 2014 | 1,838 | 9,301 | 5.1 | 10 | 2,731 | 22,964 | 8.4 |
| 2015 | 1,832 | 9,196 | 5.0 | 11 | 1,310 | 8,015 | 6.1 |
| 2016 | 1,870 | 9,168 | 4.9 | 12 | 316 | 1,518 | 4.8 |
| | | | | 13 | 2,338 | 20,059 | 8.6 |
| | | | | 15 | 1 | 1 | 1.0 |

Panel C: Data Coverage by Industry

| J-SIC Industry Name | No. Firms | No. Forecasts | $\frac{\text{Num Forecasts}}{\text{Firm}}$ | $\frac{\text{Num Years Covered}}{\text{Firm}}$ |
|---|---|---|---|---|
| Agriculture, Forestry & Fishery | 5 | 283 | 56.6 | 14.2 |
| Mining & Construction | 293 | 16,812 | 57.4 | 14.3 |
| Manufacturing (Non-Machinery) | 442 | 22,283 | 50.4 | 12.6 |
| Manufacturing (Machinery) | 820 | 43,079 | 52.5 | 13.1 |
| Trade | 597 | 26,262 | 44.0 | 11.0 |
| Food & Beverage | 244 | 8,781 | 36.0 | 9.0 |
| Transportation | 319 | 15,319 | 48.0 | 12.0 |
| Utilities | 175 | 6,692 | 38.2 | 9.6 |
| Services | 399 | 9,214 | 23.1 | 5.8 |

## Table A.2: Summary Statistics Compared with the Full Factset Sample

This table presents publicly audited financials for the full sample of Japanese listed versus those firms who we matched to the Ministry of Finance Business Outlook Survey.

| Variable | Mean | SD | $5^{th}$ Percentile | $10^{th}$ Percentile | $25^{th}$ Percentile | Median | $75^{th}$ Percentile | $90^{th}$ Percentile | $95^{th}$ Percentile |
|---|---|---|---|---|---|---|---|---|---|
| Panel A: Ministry of Finance Sample | | | | | | | | | |
| Tobin's Q | 1.165 | 0.635 | 0.611 | 0.699 | 0.839 | 1.001 | 1.252 | 1.735 | 2.262 |
| Total Book Debt (mn) | 22.013 | 19.369 | 0.000 | 0.150 | 4.690 | 18.165 | 34.836 | 50.208 | 59.37 |
| Asset Tangibility | 0.290 | 0.189 | 0.015 | 0.043 | 0.152 | 0.270 | 0.403 | 0.548 | 0.655 |
| Log(Assets) | 10.784 | 1.722 | 8.235 | 8.781 | 9.657 | 10.596 | 11.699 | 13.115 | 14.208 |
| R&D/Asset | 1.041 | 1.772 | 0.000 | 0.000 | 0.000 | 0.109 | 1.337 | 3.408 | 5.319 |
| Cash/Asset | 0.003 | 0.007 | 0.000 | 0.000 | 0.000 | 0.001 | 0.002 | 0.006 | 0.013 |
| Dividend Yield (%) | 1.622 | 1.196 | 0.000 | 0.000 | 0.750 | 1.470 | 2.338 | 3.239 | 3.846 |
| ROA (%) | 1.998 | 4.669 | -6.428 | -2.102 | 0.548 | 2.042 | 4.091 | 6.812 | 9.017 |
| Panel B: Full Sample | | | | | | | | | |
| Tobin's Q | 2.210 | 0.800 | 1.604 | 1.693 | 1.836 | 1.990 | 2.245 | 2.836 | 3.613 |
| Total Book Debt (mn) | 20.912 | 19.58 | 0.000 | 0.000 | 3.097 | 16.279 | 33.903 | 49.614 | 58.758 |
| Asset Tangibility | 0.264 | 0.196 | 0.009 | 0.019 | 0.097 | 0.244 | 0.388 | 0.536 | 0.637 |
| Log(Assets) | 10.428 | 1.912 | 7.591 | 8.193 | 9.139 | 10.216 | 11.469 | 13.034 | 14.249 |
| R&D/Asset | 0.006 | 0.014 | 0.000 | 0.000 | 0.000 | 0.001 | 0.004 | 0.015 | 0.028 |
| Cash/Asset | 1.076 | 1.835 | 0.000 | 0.000 | 0.000 | 0.108 | 1.355 | 3.563 | 5.643 |
| Dividend Yield (%) | 1.785 | 1.304 | 0.000 | 0.000 | 0.866 | 1.657 | 2.553 | 3.486 | 4.145 |
| ROA (%) | 2.328 | 5.437 | -8.876 | -2.768 | 0.637 | 2.431 | 4.875 | 8.197 | 11.189 |
| Panel C: Non-Responding Firm Sample | | | | | | | | | |
| Tobin's Q | 1.286 | 0.885 | 0.598 | 0.693 | 0.841 | 1.013 | 1.348 | 2.094 | 3.042 |
| Total Book Debt (mn) | 19.576 | 18.877 | 0.000 | 0.006 | 2.625 | 14.752 | 31.371 | 47.614 | 56.830 |
| Asset Tangibility | 0.240 | 0.188 | 0.008 | 0.017 | 0.075 | 0.215 | 0.359 | 0.507 | 0.594 |
| Log(Assets) | 10.441 | 1.712 | 7.720 | 8.355 | 9.275 | 10.372 | 11.483 | 12.536 | 13.530 |
| R&D/Asset | 0.005 | 0.011 | 0.000 | 0.000 | 0.000 | 0.001 | 0.004 | 0.012 | 0.024 |
| Cash/Asset | 1.709 | 1.370 | 0.000 | 0.000 | 0.610 | 1.592 | 2.577 | 3.497 | 4.184 |
| Dividend Yield (%) | 1.163 | 1.938 | 0.000 | 0.000 | 0.000 | 0.148 | 1.445 | 3.913 | 6.112 |
| ROA (%) | 2.068 | 6.226 | -13.859 | -5.365 | 0.463 | 2.522 | 5.135 | 8.86 | 12.282 |

## A.2 Variable Definition: Institutional Investor Distraction

We adapt the methodology of Kempf et al. (2017). The importance of an investor is $w_{it}^{investors} + w_{i,t}^{portfolio}$. For each investor, to calculate $w_{i,t}^{portfolio}$ we create a quantile rank the US dollar market value of their holding. For example, if one held four holdings, the largest would have a value of 1, the second largest would have a value of 3/4, etc. For $w_{it}^{investors}$ we calculate the quintile rank of the firm among all investors. For example, the 2nd ranked investor among 10 institutional shareholders would receive a score of 0.9. In this way, both $w_{it}^{investors}, w_{i,t}^{portfolio}$ are numbers which range from 0 to 1, and so are equally important in the evaluation of an investor's importance. Formally, an investor's overall importance is:

$$w_{it} = \frac{w_{it}^{investors} + w_{it}^{portfolio}}{\sum_{j}^{\forall investors} w_{jt}^{investors} + w_{j,t}^{portfolio}}$$

Now we define an investor's distraction-level $DISTRACTION_{i,t,I}$ for investor $i$ and time $t$ in industry i. Note that for industry definitions, we are employing Fama-French 12 industries, and we define an industry at the industry-country level. We buttress the exclusion restriction, we exclude Japanese firms from industries under consideration. Therefore, a distraction event for an investor in a Japanese firm is defined as a foreign industry-country return that is in the 5th percentile (most negative). When an industry-country is undergoing a distraction event, we assign a value of 1. When it is not, we assign a value of 0. An investor's distraction is based on all industries except for industry $I$ outside of Japan. Their distraction is based on the market-cap weight of this industry-country. Formally:

$$\underbrace{DISTRACTION_{i,t,I}}_{\text{investor distraction}} = wwwww \underbrace{\sum_{j}^{\forall IND \neq I} \sum_{C}^{\forall countries\_notJapan}}_{\text{other industry country}} \underbrace{1XTREME\ RETURN_{j,C}}_{\text{5th percentile return}} \times \underbrace{\frac{MV_{j,C}}{PORTVALUE}}_{\text{industry weight}}$$

Thus, a stock-level distraction is: $DISTRACTION_{s,t} = \sum_{i}^{\forall investors} DISTRACTION_{i,t,I} \times w_{it}$.In words, stock-level distraction is the weighted mean of distraction among investors. An investor's weight is the sum of the quantile rank of their holdings compared to all investors and the company's holding among all of its holdings. An investor's distraction is the weighted mean of a dummy variable that is 1 when the industry is, over the last year, undergoing a 5th percentile return event.

## A.3 Stale Internal Forecasts and Asynchronicities

We address internal forecast staleness in six ways. First, we find the public bias is present at all horizons whereby public versions of the same forecast tend to be more pessimistic than internal forecasts. Presumably, at the start of the year, there is simply less information the manager may be

privately aware of, yet we still find robust estimates. Moreover, we find the analysis in the second as well as within the last six months where both a public and private forecast are observed. The split sample tests of Table 3 are notable because effectively, they are analysis conducted at the firm-quarter level. Whatever staleness might be present, the staleness must persist within firm-quarter.

Second, the cubic polynomial of horizon $f(h)$ controls for a non-linear effect of forecast horizon on forecast errors, defined as a cubic polynomial. Third, Panel B of we employ firm-quarter fixed effects untabulated robustness checks. We assume intra-quarter information across months is not severely different. Fourth, stale internal forecasts cannot explain cross-sectional variation in governance and financial constraints that are tied together to form a tradeoff between a high equity price today versus the future. Presumably, these cross-sectional differences do not affect the relative timing of these two forecasts. Fifth, we later on present results on pessimism predicting stock returns. If forecasts are stale because managers bake in *new* information into the forecasts which private forecasts do not contain, this gap should not positively predict future returns. Once that information is disseminated publicly through the public forecast, this should yield predictability for future returns. Yet, we find evidence of this relation, suggesting that managers revising down forecasts due to new information is likely strategic rather than reactive. Sixth, Figure 1 suggests that the public forecast deviates from the internal forecast in a probably "unnatural way": it is not obvious why updates to information would produce bunching in this manner. It is more likely rather the data are strategically manipulated.

Table A.3: Removing Stale Forecasts

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts when removing stale forecasts within a firm-year. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. $FE^{\text{Sales}}$ is the forecast error of sales, defined as realized minus expected sales deflated by realized sales, multiplied by 100. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. All regressions include a cubic control for the forecast horizon in months, which we suppress for space. All specifications use firm-by-year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| Panel A: Profit Forecast Errors | | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| *Dependent variable:* | $sign(FE^{\text{Profits}})$ | $FE^{\text{Profits}}$ | $\log\left(1+\lvert FE^{\text{Profits}}\rvert\right)$ |
| Public | 0.201*** | 0.093*** | -0.127*** |
| | (0.029) | (0.008) | (0.005) |
| Observations | 58,953 | 58,953 | 58,953 |
| $R^2$ | 0.775 | 0.754 | 0.829 |
| Panel B: Sales Forecast Errors | | | |
| | (1) | (2) | (3) |
| *Dependent var:* | $sign(FE^{\text{Sales}})$ | $FE^{\text{Sales}}$ | $\log\left(1+\lvert FE^{\text{Sales}}\rvert\right)$ |
| Public | 0.889*** | 0.053*** | -0.235*** |
| | (0.080) | (0.007) | (0.008) |
| Observations | 58,161 | 58,161 | 58,161 |
| $R^2$ | 0.746 | 0.769 | 0.782 |

## A.4 Additional Robustness Tests

Using the first forecasts in the fiscal year, we use the following specification:

$$\frac{[EPS_{i,t} - E[EPS_{i,j,t}]}{\sigma_i^{EPS}} = \alpha_{i,j} + \alpha_{j,t} + \beta \text{ Public Pessimism}_{i,t} + \gamma \text{ Internal } FE_{i,t}^{Profits} + \delta \text{ Public Pessimism}_{i,t} \times \text{More Japanese}_{i,j,t} + \varepsilon_{tf}, \quad (5)$$

where $i$ indexes a firm, $j$ indexes an analyst, and $t$ indexes a fiscal year. The outcome variable is the analysts-level forecast error scaled by the dispersion of forecasts, an individual analogue to SUE.

[Table A.11]

Table A.11 presents our results. We find that more analysts, particularly those from Japanese brokers, are associated with higher pessimism. This is sensible because local analysts are likely

more familiar with the company and its prospects, and conversely managers are likelier to be familiar local analysts. Therefore, managers likely face greater pressure from local analysts. We find stronger results at longer horizons, consistent with analysts at Japanese brokers relying more on the manager's forecast at the beginning of the year. These inferences are robust to a variety of within analyst-firm, within-analyst year fixed effects, suggesting our finding is robust many sources of unobserved heterogeneity.

Overall, our evidence on sell-side analysts, a firm's previous performance, and CEO tenure suggest that public pessimism is not a perpetually sustainable equilibrium and that it likely has a lifecycle. In particular, as CEO tenure increases and as a firm performs well, managers tend to decrease the public pessimism.

## Table A.4: Robustness on Sales

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. $FE^{\text{Sales}}$ is the forecast error of sales, defined as realized minus expected sales deflated by realized sales, multiplied by 100. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. All regressions include a cubic control for the forecast horizon in months, which we suppress for space. All specifications use firm-by-year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| Panel A: Sales Forecast Errors | | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Dependent var:* | $sign(FE^{Sales})$ | | $FE^{\text{Sales}}$ | | $\log\left(1+\lvert FE^{\text{Sales}}\rvert\right)$ | |
| Public | 0.020*** | 0.022*** | 0.465*** | 0.410*** | -0.110*** | -0.085*** |
| | (0.005) | (0.006) | (0.051) | (0.056) | (0.006) | (0.006) |
| FE: Firm-Year | ✓ | | ✓ | | ✓ | |
| FE: Firm-Half-Year | | ✓ | | ✓ | | ✓ |
| Observations | 92,072 | 92,072 | 92,072 | 92,072 | 92,072 | 92,072 |
| $R^2$ | 0.811 | 0.923 | 0.789 | 0.910 | 0.788 | 0.904 |

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. $FE^{\text{Sales}}$ is the forecast error of sales, defined as realized minus expected sales deflated by realized sales, multiplied by 100. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. All regressions include a cubic control for the forecast horizon in months, suppressed for brevity, and use firm-by-year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Panel B: Sales forecast errors:* | Intensive Margin ($sign(FE^{\text{Sales}})$) | | | | | Intensive Margin ($FE^{\text{Sales}}$) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Public | 0.017*** | 0.013* | 0.014 | 0.056*** | 0.023** | 0.474*** | 0.304*** | 0.400*** | 0.587*** | 0.400*** |
| | (0.006) | (0.008) | (0.012) | (0.009) | (0.009) | (0.067) | (0.098) | (0.133) | (0.069) | (0.084) |
| Public × Medium Horizon | -0.016* | | | | | -0.164** | | | | |
| | (0.008) | | | | | (0.065) | | | | |
| Public × Long Horizon | -0.003 | | | | | -0.459*** | | | | |
| | (0.006) | | | | | (0.093) | | | | |
| Sample | All | Horizon ∈ (9,12] | Horizon ∈ (6,9] | Horizon ∈ (0,6] | Sales ≥ 70 bn | All | Horizon ∈ (9,12] | Horizon ∈ (6,9] | Horizon ∈ (0,6] | Sales ≥ 70 bn |
| Observations | 91,160 | 27,576 | 26,067 | 37,517 | 67,812 | 91,160 | 27,576 | 26,067 | 37,517 | 67,812 |
| $R^2$ | 0.811 | 0.978 | 0.972 | 0.919 | 0.819 | 0.789 | 0.971 | 0.966 | 0.882 | 0.812 |

Table A.5: SUE based on Horizon (continued)

| Panel B: SUE using Forecast Horizon between 1 to 6 months | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Dependent variable:* | Scaled Analyst Forecasts | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Internal $FE^{\text{Profits}}$ | 0.196*** | 0.015 | 0.209*** | 0.020 | 0.175*** | 0.040 | -0.009 |
| | (0.033) | (0.053) | (0.040) | (0.077) | (0.031) | (0.054) | (0.089) |
| More Japanese | | 0.042*** | | -0.171 | | -0.051 | -0.170 |
| | | (0.015) | | (0.198) | | (0.081) | (0.143) |
| Public Pessimism | 0.140*** | 0.039 | 0.154*** | 0.044 | 0.137*** | 0.028 | 0.041 |
| | (0.044) | (0.064) | (0.056) | (0.102) | (0.037) | (0.054) | (0.104) |
| Internal $FE^{\text{Profits}} \times$ More Japanese | | 0.046*** | | 0.046*** | | 0.035** | 0.044** |
| | | (0.009) | | (0.014) | | (0.014) | (0.020) |
| More Japanese $\times$ Public Pessimism | | 0.025*** | | 0.027* | | 0.019 | 0.023 |
| | | (0.010) | | (0.016) | | (0.014) | (0.024) |
| FE: | Year | Year | Analyst-Year | Analyst-Year | Analyst-Year & Analyst-Firm | Analyst-Firm | Analyst-Year & Analyst-Firm |
| Observations | 25,005 | 25,005 | 25,005 | 25,005 | 25,005 | 25,005 | 25,005 |
| $R^2$ | 0.054 | 0.056 | 0.273 | 0.274 | 0.611 | 0.471 | 0.611 |

## Table A.6: Public Pessimism and Next Year's Stock Returns

The table below shows whether the public-internal forecast gap, defined as the public earnings forecast minus the confidentially made forecasts, predicts future returns. We winsorize the forecast gap at the 1%. Observations are at the firm-by-fiscal year level. All regressions in include industry-by-year fixed effects, the "FE" row denotes additional fixed effects depending on column, and columns (1) through (4) includes the following firm controls: log number of analysts, log past fiscal year's total assets, lagged capital expenditures relative to total assets. Columns (5) and (6) include lagged assets as firm controls. Standard errors are clustered by year and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Dependent Variable:* | Next Year Stock Returns | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Internal $FE^{\text{Sales}}$ | 1.102*** | | 1.016*** | | 0.898*** | |
| | (0.104) | | (0.111) | | (0.153) | |
| Public Pessimism$^{\text{Sales}}$ | 0.913*** | | 0.847*** | | 0.786*** | |
| | (0.080) | | (0.091) | | (0.071) | |
| Internal $FE^{\text{Profits}}$ | | 3.716*** | | 3.580*** | | 3.294*** |
| | | (0.956) | | (1.076) | | (0.825) |
| Public Pessimism$^{\text{Profits}}$ | | 3.008*** | | 2.858*** | | 2.707*** |
| | | (0.343) | | (0.371) | | (0.267) |
| Size | | | | | -23.661*** | -23.214*** |
| | | | | | (5.239) | (5.462) |
| FE: Industry-Year | | | ✓ | ✓ | ✓ | ✓ |
| FE: Firm | | | | | ✓ | ✓ |
| Observations | 8,240 | 8,240 | 8,240 | 8,240 | 8,240 | 8,240 |
| $R^2$ | 0.361 | 0.373 | 0.453 | 0.465 | 0.558 | 0.566 |

## Table A.7: Sources of Financing and Uses of Funds

The table below studies whether public pessimism is affected by the firm's main sources of financing and its use of profits. $FE$ stands for forecast error for the relevant variable denoted on superscripts. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| Panel A: Sources of Financing | | | | | | |
|---|---|---|---|---|---|---|
| *Dependent variable:* | $FE^{\text{Profit}}$ | sign($FE^{\text{Profit}}$) | $FE^{\text{Profit}}$ | sign($FE^{\text{Profit}}$) | $FE^{\text{Profit}}$ | sign($FE^{\text{Profit}}$) |
| Top 3 Main Sources of Financing Includes = | Equity | | Corporate Bonds | | Public Institutions | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Public | 0.108*** | 0.050*** | 0.120*** | 0.052*** | 0.124*** | 0.054*** |
| | (0.021) | (0.005) | (0.021) | (0.005) | (0.023) | (0.006) |
| Public × Factor | 0.710* | 0.149** | -0.188 | -0.051* | -0.085* | -0.024 |
| | (0.413) | (0.060) | (0.128) | (0.028) | (0.050) | (0.016) |
| Observations | 82,007 | 82,007 | 82,007 | 82,007 | 82,007 | 82,007 |
| $R^2$ | 0.823 | 0.798 | 0.823 | 0.798 | 0.823 | 0.798 |
| Panel B: Intended Use of Profits | | | | | | |
| *Dependent variable:* | $FE^{\text{Profit}}$ | | | | | |
| Number One Use of Profits = | Capital Expenditure | R&D | New Business | Incremental Improvements | Decrease Debt | Distribute to Shareholders |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Public | 0.067** | 0.090*** | 0.073*** | 0.141*** | 0.121*** | 0.119*** |
| | (0.028) | (0.022) | (0.025) | (0.026) | (0.023) | (0.034) |
| Public × Factor | 0.117*** | 0.125** | 0.131*** | -0.081** | -0.021 | -0.003 |
| | (0.038) | (0.053) | (0.036) | (0.041) | (0.053) | (0.026) |
| Observations | 82,007 | 82,007 | 82,007 | 82,007 | 82,007 | 82,007 |
| $R^2$ | 0.823 | 0.823 | 0.823 | 0.823 | 0.823 | 0.823 |

## Table A.8: Public Pessimism and Expected Economic Conditions

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts with measures of financial constraints and also the impact of the public pessimism on corporate issuances and M&A activity. $FE$ stands for forecast error for the relevant variable denoted on superscripts. In Panel A, Column 1 studies the impact of the percentile rank of lagged cash holdings relative to total assets across the sample period, a specification which mitigates outliers. Column 2 studies whether the firm believes financing is an important determinant of their business outcomes in the next quarter. Columns (1) through (3) uses the sum of indicators specifying whether the manager believes equipment, labor, and macroeconomic conditions will improve over the next two quarters. Column 4 studies the cross-sectional standard deviation of expected sales growth rates rates. Column 5 and (6) study whether firms were uncertain over the labor and equipment conditions over the next two quarters, Column 7 studies whether firms expect overseas demand to improve. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Dependent variable:* | | $FE^{\text{Profit}}$ | |
|---|---|---|---|
| Expected Economic Measure = | Less Equipment Tightness | Less Labor Tightness | Improving Macro Conditions |
| | (1) | (2) | (3) |
| Public | 0.139*** | 0.143*** | 0.135*** |
| | (0.023) | (0.022) | (0.024) |
| Public × Factor | -0.063 | -0.118 | -0.008 |
| | (0.112) | (0.121) | (0.065) |
| Observations | 70,338 | 70,338 | 70,338 |
| $R^2$ | 0.827 | 0.827 | 0.827 |
| *Dependent variable:* | | $FE^{\text{Profit}}$ | |
| Expected Economic Measure = | Uncertain Labor Conditions | Uncertain Equipment Conditions | Improving Overseas Demand |
| | (4) | (5) | (6) |
| Public | 0.120*** | 0.129*** | 0.120*** |
| | (0.023) | (0.022) | (0.024) |
| Public × Factor | 0.204** | 0.561 | 0.111*** |
| | (0.102) | (0.496) | (0.042) |
| Observations | 70,338 | 70,338 | 70,338 |
| $R^2$ | 0.827 | 0.827 | 0.827 |

Table A.9: Forecasts and Corporate Policy

The table below shows the main results studying the relation between corporate investment rates and profit forecasts. Profit forecasts are scaled by total assets and investment rates are defined as the capital expenditure scaled by previous period's net property, plant and equipment. Public pessimism is defined as the public forecast minus the internal forecast. We winsorize the investment rate, forecasted profit, and the forecast gap at the 1%. Observations are at the firm-by-fiscal year level. Fixed effects are shown in the row with the "FE" prefix. Standard errors are clustered by year and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Dependent variable:* | Investment Rate | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Internal Profit Forecast | 0.937*** | 0.961*** | 0.910*** | 0.771*** | 0.811*** | 0.623*** |
| | (0.105) | (0.107) | (0.108) | (0.102) | (0.110) | (0.117) |
| Public-Internal Profit Forecast Gap | | 1.675*** | 1.656** | | 1.069 | 0.768 |
| | | (0.636) | (0.690) | | (0.662) | (0.700) |
| Internal Sales Forecast | | | 0.022*** | | | 0.078*** |
| | | | (0.007) | | | (0.023) |
| Public-Internal Sales Forecast Gap | | | 0.030 | | | 0.114 |
| | | | (0.068) | | | (0.074) |
| FE: Firm | | | | ✓ | ✓ | ✓ |
| FE: Industry-Year | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Observations | 7,998 | 7,991 | 7,990 | 7,998 | 7,991 | 7,990 |
| $R^2$ | 0.551 | 0.185 | 0.190 | 0.551 | 0.552 | 0.555 |

## A.5 Prior Performance and Sustainability of Public Pessimism

Next, we study whether public pessimism appears to be a sustainable equilibrium outcome in the financial markets. On one hand, with rational financial markets, Stein (1989) shows that firms may be inefficiently distorting behavior in equilibrium, with no financial market reactions. On the other hand, our previous evidence suggests financial markets do not appear to undo the manager's public-internal forecast gap. Yet, we would expect financial markets to learn if managers are always consistently publicly pessimistic and consistently beating forecasts.

First, we argue that managers should be more likely to be loss-averse after a bad year. This might be partly behavioral: managers may not like a successive string of losses. On the other hand, various stakeholders of the firm may be less tolerant of the manager after multiple disappointments. To test this idea, we interact our main variable *Public* with multiple measures of prior performance. Panel A in Table A.10 reports the relation between past stock returns. Column 1 and column 2 suggest that the magnitude of pessimism is dampened significantly by prior returns. Note that our results are not affected by "extrapolation" of the manager as both confidential and public forecasts should be affected by the same extrapolation bias. The within firm-year specification presumably nets out this difference. Column 3 and 4 show that there is no relation to volatility, suggesting poor

performance rather than uncertainty compelling managers to report pessimistically.

[Table A.10]

Table A.10: Past Performance and Pessimism

The table below shows the main results studying the forecast errors of public versus confidentially-made forecasts. $FE$ stands for forecast error for the relevant variable denoted on superscripts. Panel A studies the effect of past stock market returns. Panel B studies the effect of past firm performance in terms of earnings. The first confidential sale and profit forecasts are from the first quarter in the fiscal year. Observations are at the firm-horizon-forecast type level, so for the same horizon there may be both a public and internal forecast. All regressions include cubic controls of the forecast horizon in months and firm-by-fiscal year fixed effects. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| Panel A: Past Stock Performance | | | | |
|---|---|---|---|---|
| *Dependent variable:* | $FE^{\text{Profit}}$ | $sign(FE^{\text{Profit}})$ | $FE^{\text{Profit}}$ | $sign(FE^{\text{Profit}})$ |
| Past Performance = | Prior Stock Returns | | Prior Stock Return Volatility | |
| | (1) | (2) | (3) | (4) |
| Public | 0.128*** | 0.052*** | 0.083*** | 0.056*** |
| | (0.022) | (0.005) | (0.032) | (0.008) |
| Public × Factor | -0.152*** | -0.040*** | 0.231 | -0.087 |
| | (0.043) | (0.011) | (0.356) | (0.072) |
| Observations | 86,681 | 86,681 | 86,616 | 86,616 |
| $R^2$ | 0.821 | 0.799 | 0.821 | 0.799 |
| Panel B: Persistence of Public Pessimism | | | | |
| *Dependent variable:* | $FE^{\text{Profit}}$ | $sign(FE^{\text{Profit}})$ | $FE^{\text{Profit}}$ | $sign(FE^{\text{Profit}})$ |
| | (1) | (2) | (3) | (4) |
| Public | 0.103*** | 0.049*** | 0.114*** | 0.049*** |
| | (0.019) | (0.005) | (0.019) | (0.005) |
| Public × Prior Public Pessimism | -0.119*** | -0.014* | | |
| | (0.043) | (0.007) | | |
| Public × *sign*(Prior Public Pessimism) | | | -0.073*** | -0.022*** |
| | | | (0.017) | (0.005) |
| Observations | 50,446 | 50,446 | 50,446 | 50,446 |
| $R^2$ | 0.808 | 0.799 | 0.808 | 0.799 |

Next, we look at pessimism conditional on prior-year pessimism, reported in Panel B. One question is whether managers can be perpetually pessimistic. While it's not obvious how external parties would even become aware of the difference between internal and public profit projections, one might argue that investors or the board of directors might eventually learn if managers are constantly disclosing in a strategic manner. Even so, we find evidence of self-corrective behavior, that managers do not engage in this behavior unmitigated. In Table A.10, we find that when managers

are pessimistic the prior year, they tend to be less so this year. Column 1 and 2 test whether future forecast pessimism positively covaries with prior forecast pessimism. The null hypothesis is that prior forecast pessimism covaries with future forecast pessimism with a coefficient of 1. If a manager was 5% pessimistic this year, we expect that in the absence of adjustments the manager would be 5% pessimistic next year. A coefficient greater than 1 suggests managers increase their prior behavior. Instead, columns 1 and 2 reveal that managers tend to be less pessimistic conditional on past pessimism. In particular, the coefficient of -0.119 suggests that when a manager was pessimistic one year, they are, on average, not as pessimistic the following year. Column 2 tests this reversion at the extensive margin, revealing similar results. Columns 3 and 4 present alternative specifications of columns 1 and 2, where prior pessimism is defined as a threshold indicator for the manager being pessimistic at all the prior year, revealing similar results.

## A.6 Role of Sell-side Analysts

Finally, we study where sell-side analysts do not undo the public pessimism and whether the public pessimism is affected by the number of analysts. Bernhardt and Campello (2007) argue that investors appear to be misled by managers through the manager's managing of on analyst expectations. In our setting, we focus on foreign versus local analysts. Appendix Table A.11 presents our results. Local analysts may have an information advantage relative to foreign analysts.

## Table A.11: Impact on Sell-side Analysts

The table below shows the main results studying the forecast errors of public versus internal forecasts with analyst forecast errors. SUE stands for surprise unexpected earnings relative to an analyst's latest forecast for a firm-year, which is the realized earnings minus forecasted earnings, all scaled by the standard deviation of forecasts from analysts for that firm in that year. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. SUE is winsorized at the 99% level to remove outliers. Observations are at the firm-analyst-year level, so for the firm-year, there are multiple SUEs for each analyst covering the firm. Fixed effects in each specification are shown in the rows with the "FE:" prefix. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| *Dependent variable:* | Surprise Unexpected Earnings from Analyst Perspective | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | |
| Internal $FE^{\text{Profits}}$ | 0.088*** | 0.001 | 0.095*** | 0.018 | 0.066*** | 0.013 | |
| | (0.009) | (0.015) | (0.011) | (0.027) | (0.012) | (0.021) | ( |
| log(1 + *%JapaneseBroker*) | | 0.030*** | | -0.164 | | -0.094 | |
| | | (0.011) | | (0.137) | | (0.071) | ( |
| Public Pessimism | 0.090*** | -0.008 | 0.109*** | -0.019 | 0.084** | -0.001 | |
| | (0.025) | (0.037) | (0.031) | (0.062) | (0.034) | (0.045) | ( |
| Internal $FE^{\text{Profits}}\times$ log*(1 + % Japanese Broker)* | | 0.022*** | | 0.019*** | | 0.017*** | 0 |
| | | (0.003) | | (0.007) | | (0.005) | ( |
| log*(1 + % Japanese Broker)*$\times$ Public Pessimism | | 0.025*** | | 0.032** | | 0.020* | |
| | | (0.008) | | (0.012) | | (0.012) | ( |
| FE: Year | ✓ | ✓ | | | | | |
| FE: Analyst-Year | | | ✓ | ✓ | ✓ | | |
| FE: Analyst-Firm | | | | | ✓ | ✓ | |
| Observations | 23,625 | 23,625 | 23,625 | 23,625 | 23,625 | 23,625 | 1 |
| $R^2$ | 0.064 | 0.067 | 0.320 | 0.321 | 0.650 | 0.493 | |

Table A.12: SUE based on Horizon

The table below shows the main results studying the forecast errors of public versus internal forecasts with analyst forecast errors. Scaled Analyst Forecasts are the level of the earnings-per-share forecasts that an analyst makes scaled by the cross-sectional standard deviation of all other forecasts. The denominator is the same as in the surprised unexpected earnings. $FE^{\text{Profit}}$ is the forecast error of profits, defined as the realization of profit minus expected profit divided by realized sales, multiplied by 100. Analyst forecasts are winsorized at the 99% level to remove outliers. More Japanese is measured by log(1+%Japanese Broker). Observations are at the firm-analyst-year level, so for the firm-year, there are multiple earnings forecasts for each analyst covering the firm. Fixed effects in each specification are shown in the rows with the "FE:" prefix. Standard errors are clustered by firm and are shown in parentheses. * signifies p < 0.1, ** signifies p < 0.05, and *** signifies p<0.01.

| Panel A: SUE using Forecast Horizon between 6 to 9 months | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Dependent variable:* | Scaled Analyst Forecasts | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Internal $FE^{\text{Profits}}$ | 0.099*** | -0.015 | 0.116*** | 0.009 | 0.082*** | -0.010 | -0.041 |
| | (0.015) | (0.020) | (0.018) | (0.042) | (0.019) | (0.026) | (0.053) |
| More Japanese | | 0.034** | | -0.343 | | -0.058 | 0.004 |
| | | (0.014) | | (0.224) | | (0.066) | (0.166) |
| Public Pessimism | 0.087*** | -0.021 | 0.112*** | -0.024 | 0.084*** | -0.046 | -0.130** |
| | (0.031) | (0.040) | (0.036) | (0.068) | (0.028) | (0.041) | (0.061) |
| Internal $FE^{\text{Profits}}$ × More Japanese | | 0.030*** | | 0.026*** | | 0.026*** | 0.030** |
| | | (0.004) | | (0.010) | | (0.007) | (0.012) |
| More Japanese × Public Pessimism | | 0.028*** | | 0.034** | | 0.033*** | 0.053*** |
| | | (0.008) | | (0.014) | | (0.012) | (0.016) |
| FE: | Year | Year | Analyst-Year | Analyst-Year | Analyst-Year & Analyst-Firm | Analyst-Firm | Analyst-Year & Analyst-Firm |
| Observations | 20,148 | 20,148 | 20,148 | 20,148 | 20,148 | 20,148 | 20,148 |
| $R^2$ | 0.052 | 0.055 | 0.320 | 0.321 | 0.651 | 0.493 | 0.652 |
| Observations | 25,005 | 25,005 | 25,005 | 25,005 | 25,005 | 25,005 | 25,005 |
| $R^2$ | 0.054 | 0.056 | 0.273 | 0.274 | 0.611 | 0.471 | 0.611 |

# B Details of the Business Outlook Survey

The Business Outlook Survey is jointly administered by the Japanese Ministry of Finance and Cabinet Office, and has been conducted from the first quarter (April - June) of Fiscal Year 2004 as a General Statistical Survey under the Statistics Act.[34] The survey contains both a series of qualitative and quantitative information and are based on questionnaires. Responses are collected both via mail and online. It targets corporations with capital of 10 million yen or more and aims to obtain basic data concerning the current status and forecasts of the Japanese economy. The surveys are conducted through local branch offices such as the Local Finance (Branch) Bureaus, the Okinawa General Bureau, respective Local Finance Offices, the Otaru Sub-Office, and the Kitami Sub-Office of the Hokkaido Local Finance Bureau.

[34]The first Statistics Act (Act No. 18 of 1947) was later revised in Act No. 53, which was passed on May 23, 2007 and implemented in April 2009.

## B.1 Sampling

The survey targets are corporations with capital, contributions, or funds (hereinafter collectively referred to as "capital") of 10 million yen or over (general partnership companies, limited partnership companies, limited liability companies, and stock companies whose head offices are located in Japan, as well as shinkin banks, a federation of shinkin banks, credit cooperatives, a federation of credit cooperatives, labor banks, a federation of labor banks, norinchukin banks, a federation of credit agricultural cooperatives, a federation of credit fisheries cooperatives, a federation of fishery processing cooperatives, life insurance companies, and non-life insurance companies whose head offices are located in Japan). However, regarding corporations engaged in the electricity, gas, and water supply industry and the finance and insurance industry, only those with capital of 100 million yen or over are the targets.

Sampling is based on the corporations covered by quarterly surveys of Financial Statements Statistics of Corporations by Industry. For non-financial corporations, the sample selected for quarterly survey is stratified into seven categories by capital size[35] and 45 categories by industry to be representative of the Japanese economy.[36] For financial corporations, the sampling is stratified into four categories by size.[37] Every survey, the sample size is about 16,000 corporations.[38] Industries in the aggregated survey result are based on 37 Japanese SIC codes (middle classification (2-digit figure) for manufacturing and large classification (alphabet letters) for non-manufacturing). It means that some industries are grouped into larger class for reporting. Table B.1 shows the sampling probabilities for each broad size strata.

[35] Seven categories are (1) 0.01 - 0.02 billion, (2) 0.02 - 0.05 billion, (3) 0.05 - 0.1 billion, (4) 0.1 - 0.5 billion, (5) 0.5 - 1 billion, (6) 1 - 2 billion, (7) over 2 billion. Before FY2010, the border between (4) and (5) was 0.6 billion yen. In the aggregated results, firms are grouped by size into three categories: "small-medium" corporations (1, 2, 3), "medium-sized" corporations (4, 5) and "large" corporations (6, 7).

[36] The Twelfth revision of the Japan Standard Industrial Classification (November 2007) was enforced on April 1, 2008, and the stratification by industry changed from the first quarter (April - June) of Fiscal Year 2009. Originally, the sampling was stratified into 43 categories by industry for non-financial corporations.

[37] The universe of financial corporations was financial corporations in the corporation list of Establishment and Enterprise Census before 2010. From the first quarter of FY2010, it changed to the corporation list of quarterly surveys of Financial Statements Statistics of Corporations by Industry.

[38] The sample size was about 15,000 before the change of the universe of financial corporations.

Table B.1: Survey Sampling

The table below shows the sampling procedure for non-financial and financial corporations. Financial corporations includes both banks, insurance companies, and other financial institutions. * means that 60% of overall small corporations selected by quarterly surveys of Financial Statements Statistics for Corporations by Industry must be sampled and the target number in the sample is around 6,000 firms. In addition, when the number of total sampled corporations with capital less than 500 million yen is less than 30 for each stratum, more firms will be additionally sampled to increase the total number in that stratum to 30.

| Panel A: Non-Financial Corporations | | | |
|---|---|---|---|
| Corporation Type | Size (Yen) | Approx. Size (USD) | Sample Probability |
| Large | $\geq$ 2 billion | $\geq$ 18 million | 100% |
| | 1 - 2 billion | 9-18 million | 50% |
| Medium-Sized | 0.5 - 1 billion | 4.5 - 9 million | 50% |
| | 0.1 - 0.5 billion | 1 - 4.5 million | Remaining |
| Small-Medium | 0.01 - 0.1 billion | 0.1 - 1 million | to hit 6,000 firms* |
| Panel B: Financial Corporations | | | |
| Corporation Type | Size (Yen) | Approx. Size (USD) | Sample Probability |
| Large | $\geq$1 billion | 9 million | 100% |
| Medium-Sized | 0.5 - 1 billion | 4.5 - 9 million | 50% |
| | 0.1 - 0.5 billion | 1 - 4.5 million | Remaining |
| Small-Medium | 0.01 - 0.1 billion | 0.1 - 1 million | 0% |

Firms are sampled at the annual basis and surveys are administered on a quarterly basis, aligned with standard fiscal period ends for Japanese firms. This means the minimum number of survey responses per firm is four. Firms that are sampled are assigned a unique company identifier that is only for use in the Ministry of Finance. The disaggregated information and responses at the firm-level do not leave the Ministry of Finance building and are stored on air-gapped computers.

## B.2 Survey Questions

Qualitative questions ask about the business condition, domestic economic conditions, employment, etc. These questions provide alternatives like "up", "same" and "down." For example, "what is your business condition of the current quarter (the next quarter, the one after next) compared with the previous one?" Respondents can answer one of the four choices "up, same, down and unknown."

Quantitative questions are about realized and expected values of sales, current profit, and investment. A key feature of the survey is such that one of the horizon inquired is always the full fiscal year values. Questions about intra-year forecasts of quantitative items are different according to quarter. Realized financial statistics are available both at the annual and quarterly level. Regarding sales and current profit, the survey in April-June (called Jun. survey in tables below) and July-September (Sep. survey) include forecasts for April to September and forecasts for October to March. The survey in Q4 (Dec. survey) has forecasts for Oct.-Dec. but not forecasts

for subsequent periods. The survey in Q1 (Jan.-Mar. survey) has realized values and forecast for October to December and forecasts for April to September and October to March. Table 1 below summarizes these patterns. Table 2 shows the patterns for the other items. They have plans to invest for the future periods.

## B.3 Survey Dates

The survey dates play an important role in our sample, since they allow us to synchronously merge with the financial statement data base. Table B.2 show the survey periods. Of note is that surveys are administered in the middle of the last month in a quarter, asks for future forecasts and also asks for the current balance forecast on actual sales, profits, and investments. Thus, we have data on both actual and future expected values. The surveys are submitted, data are entered, and the aggregate survey results are published. This means that surveys have around a maximum of one month (slightly less for Q2 and Q3). Anecdotal evidence suggests surveys typically come in two weeks after being sent out on the 15th.

Table B.2: Survey Periods

| Survey Label | Survey Period | Reference Period | Release Date |
|---|---|---|---|
| Q1 | Late April to Early June | May 15 | Around June 15 |
| Q2 | Late July to Late August | August 15 | Around September 10 |
| Q3 | Late October to Late November | November 15 | Around December 10 |
| Q4 | Late January to early March | February 15 | Around March 15 |

Table B.3: Response Rates

The table below shows the average annual response rate of the Business Outlook Survey, which was administered from FY2004 (April 2004 to March 2005) to FY 2017 (April 2017 to March 2018).

| Fiscal Year | Response Rate (%) (All Firms) | Response Rate (%) (Large Firms Only) | Fiscal Year | Response Rate (%) (All Firms) | Response Rate (%) (Large Firms Only) |
|---|---|---|---|---|---|
| 2004 | 79.3 | 87.9 | 2011 | 78.6 | 87 |
| 2005 | 78.9 | 88.8 | 2012 | 79.2 | 88.1 |
| 2006 | 78.7 | 88.1 | 2013 | 80.2 | 88.4 |
| 2007 | 78.6 | 86.8 | 2014 | 81.0 | 88.1 |
| 2008 | 79.2 | 87.3 | 2015 | 80.9 | 88.6 |
| 2009 | 79.4 | 87.2 | 2016 | 80.9 | 88.1 |
| 2010 | 79.0 | 87.1 | 2017 | 81.5 | 88.6 |