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When do Employees Pursue Firm Goals versus their Career Concerns?

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As firms grow, they must continually adapt to environmental changes. Prior literature suggests that adaptation to environmental changes improves with delegation because delegation facilitates the acquisition of relevant information and a quicker response. Yet, environmental changes can also change the incentives employees face to act on the information they gather, leading them to prioritize their own self-interest over that of their employers. As a result, while delegation can improve employees' access to vital information, it can also reduce their incentives to use the information for the benefit of their employer. This paper explores the trade-off between information and incentives in the wake of environmental change by asking when employees will pursue their career concerns at the expense of organizational goals. We study the effects of two unexpected external and internal changes: changes in customer relationship appropriability and changes in firm performance. We theorize that both of these changes require employees to collect new information and adapt their behavior, but both also change employees' incentives to adapt in the direction preferred by the firm. We test our predictions using data on the US sell-side security analysts working for US banks. Our empirical approach is twofold. First, we empirically map analysts' observed behaviors (their earnings forecasts) to their career concerns (internal promotion and external mobility) and to firm-level goals (underwriting and trading revenue generation). Second, we examine the effects of unexpected changes in customer appropriability and firm performance on analysts' pursuit of their career concerns versus their employers' goals. Our findings suggest that environmental change can play an important role in shaping employees' career concerns. Specifically, we find that increases (decreases) in customer appropriability trigger (reduce) employee focus on their career goals relative to firm goals, and positive (negative) shocks to firm performance reduce (increase) their focus on their career goals relative to firm goals. We discuss the implications of our results for the literatures on organization design and the theory of the firm.

Key Words: Theory of the Firm; Career Concerns; Employment Relation; Organizational Goals

INTRODUCTION

The problem of firm growth and adaptation in the wake of environmental change continues to remain central to the management literature. In a seminal contribution to this question, Chandler (1962) argued that decentralization or delegation of decision making to lower levels in the organizations a la the M-form structure is an important design solution to the adaptation problem. His argument was that employees closest to the information are best suited to make decisions and respond rapidly to changing environments. Such an information-based view of delegation abuts uneasily against the literature on employment contracts, which views the problem of delegation as one of selecting the right type of employment contract to perform a given set of tasks. For instance, a common distinction is made between a spot-market contract and a long-term employment contract, where the former sets tasks and rewards ex ante, while the latter allows the employer to defer task selection and pre-commits the employee to carrying it out in return for an agreed upon inducement (Simon 1951; Simon 1957). As long as the inducements are commensurate with the expected contributions, employees are expected to act in the interests of the firm. Juxtaposing the two theories presents a puzzle. Navigating and responding to an environmental change involves reading information cues from the environment and delegation facilitates both an accurate understanding of the change and a quicker response (Chandler 1962). At the same time, an environmental change has the potential to disrupt the inducements-contribution equilibrium that guides choices of employees with delegated powers. If the environmental change does indeed disrupt the equilibrium, delegation rather than solving the problem of adaptation might exacerbate it with the employee taking actions that deviate from the interests of the firm. The theoretical puzzle here is that delegated decision making in the wake of an environmental shock presents a conflict between information and incentives. In an effort to shed light on this puzzle, this paper examines the question: when do employees pursue their self-interest at the expense of organizational goals?

A large and varied body of literature is concerned with how firms can ensure that employees with delegated powers end up acting in the firm's rather than their own interests, even as the environment changes. While different theories approach this problem from different points of view, most focus on the role of the employment contract in shaping employee adherence to firm goals. For instance, Simon (1951; 1991) views the employment relation as an incomplete contract that sets the boundaries on the range of actions an employee may be asked to perform. Within these boundaries, even as the environment changes employees are either indifferent among the tasks and willing to follow

firm authority or identify with the firm's goals directly. The same behaviors cannot, however, be expected of contractors in an arm's length relationship. Contractors are assumed to adhere strictly to the tasks that are specified ex ante and adjusting such contracts to environmental changes requires costly renegotiation. A different approach based on agency theory argues that the core role of the employment contract is to achieve incentive alignment between the principal and the agent. Alignment can be achieved through monitoring, rewards and/or the allocation of asset ownership specified in the contract (see Eisenhardt 1989 for a review). Environmental changes that are not built into the contract already must be addressed by changing one or more of the alignment mechanisms. Alternatively, knowledge-based theories of the firm argue that employment contracts help preserve the organization's control over its rare, valuable and inimitable knowledge (Kogut and Zander 1996). Because exchange partner loyalty to organizational goals is critical to the firm's ability to appropriate the value of its knowledge stocks (Rajan and Zingales 2001), organizations are advised to rely on employment contracts rather than arm's length relationships when assigning tasks utilizing the firm's core knowledge (Rajan and Zingales 1998; Rebitzer et al. 2007).

In sum, the focus in prior work is on explaining how firms should structure their contracts – specifically the choice between employee and contractor – to ensure employee loyalty to firm goals in the presence of shifting environments. The resulting empirical literature has sought to examine how firm boundaries vary with changing task characteristics or governance conditions (see Lafontaine and Slade 2007 for a review). In contrast, we are interested in examining how environmental shocks impact employee goal pursuit even when employment contracts remain intact.

To address this question, we start with a broad definition of the employment contract as the employee's commitment to perform a range of tasks within specified boundaries in return for an ex ante inducement. Within these boundaries, the employer reserves the right to choose the exact tasks ex post. We follow Simon (1951) in assuming that the firm and the employees find themselves in a state of equilibrium wherein organizational goals and employee goals are complements[1]. We then focus on internal and external shocks that might perturb this equilibrium. We predict that shocks which create a divergence between organizational goals and employee career concerns may lead employees to behave in ways that help satisfy their career concerns at the expense of achieving organizational goals. We focus on two such shocks: unexpected environmental changes such as changes in customer base and unexpected shocks to firm performance. Both of these shocks have the potential to alter the equilibrium

[1] Starting the analysis with the assumption of a cooperative equilibrium is also a standard approach in most analyses of contracting as repeated games (e.g. Baker et al. 2002).

by altering the relative costs to the employee of pursuing organizational goals rather than career concerns. Changes in customer appropriability – the ability of employees to take their customers with them if they move across firm boundaries – can change the employee's incentives to serve her customers in ways that most benefit her employer rather than her own future career. Changes in firm performance can change the costs and benefits of pursuing promotions within the firm rather than improving external reputation and mobility. Without changes in tasks and contracts to compensate for appropriability and performance shocks, it is possible that employees may prefer to disregard organizational goals even at the risk of displeasing their current employers. However, our goal here is not to identify an exhaustive list of triggers for disequilibria to arise. Rather, our attempt is to nudge the research literature toward a more nuanced view of the drivers of organizational goal pursuit among employees.

An empirical exploration of these arguments presents at least two related challenges. First, we need a setting where we can empirically observe the manifestation of organizational goals, individual career goals (which we term 'career concerns'), and the delegation of decision making to the employee. Second, the same behavior must map onto both firm goals and individual career concerns, such that simultaneous pursuit of both is only possible if the goals are aligned. An empirical context that satisfies these criteria is the context of securities analysts providing earnings forecasts. This setting is ideally suited to examining the pursuit of organizational and/or individual career goals. Prior research has shown that securities analysts that are optimistic in their forecasts (both relative to consensus and to realized earnings) experience growth and promotions within the firm (Hong and Kubik 2003) because optimism helps organizations secure future underwriting business (Ljungqvist et al. 2009). This makes optimism aligned with organizational goals. However, optimism bias is a problem in the external labor market because analysts' forecasting ability is better inferred from accuracy rather than optimism. This makes forecast accuracy more aligned with future mobility or what we refer to as career concerns. Because accuracy and optimism are measured using the same underlying forecasts, and are by construction often negatively correlated, we have an ideal setting where the pursuit of one goal can undermine the other. We exploit this feature of the industry to test our theory.

The paper offers three main contributions to the literatures on boundaries of the firm and organization design. First, we provide a novel explanation for why governance mechanisms are often not robust to environmental changes (Carson et al. 2006; Williamson 1985). Rather than being within the firm's control, as is the case with selecting the right contract to carry out specific tasks, the employment relation is subject to a range of external circumstances that may unexpectedly shift

employee goal pursuit in adverse (for the firm) directions. Moreover, the standard recommendations in the literature, such as contractual or task design changes, may not be feasible if the shocks are frequent (Nickerson and Zenger 2004). Rather, firms may be better off by structuring their contracts and assigning tasks ex ante that would take such fluctuations into account. Second, our approach to focusing on employee behavior provides a blueprint for cross-communication between different theories of the firm. Most theories of the firm are based around some explicit (or implicit) conception of the employment relation. However, the assumptions that different theories rely on are often incompatible with one another (e.g., rationality, risk aversion, opportunism). A comparison among theories usually entails judgments on which theories agree better with empirical reality, but in practice, multiple theories may apply to the same situations. In this paper, we show that thinking about the conditions under which the incompatible assumptions about individual behavior may each be true is a promising alternative path to encouraging discourse between theories. Finally, we show that the problem of adaptation in the wake of a firm performance shock is not simply one of inspiration (i.e., a search for an adequate response) but also one of motivation (i.e., incentivizing employees appropriately). Ignoring the motivation problem might exacerbate the firm performance problem especially if employees start prioritizing actions to re-establish the inducements-contributions equilibrium (e.g., displaying career concerns) while disregarding the actions needed to recover from the performance loss.

LITERATURE REVIEW

The failure to adapt to environmental changes can ultimately be traced to employees either not having the information to carry out the new types of tasks that the environmental changes demand, or not having the incentives to do so (Garicano and Rayo 2016). Prior work argues that the lack of information can be addressed with greater delegation to match employee goals and knowledge with task requirements, but greater delegation only works if employees continue to act in the firm's interest rather than their own, i.e. employee and firm incentives continue to be aligned (Aghion and Tirole 1997). Environmental change, however, can also reduce incentive alignment, and while firms can alter incentives to try to restore alignment, such alterations are costly and may be infeasible if environmental shifts are sufficiently frequent. Moreover, how to change contracts is typically a second-order concern. The first-order concern is answering the question of when environmental shifts cause delegation to break down in the first place. In other words, when do environmental changes cause employee and firm goals to diverge, such that delegation reduces employee adherence to firm goals?

While outright goal conflict between firms and employees is rare and unlikely to be sustainable over time, mild or occasional conflict is common, particularly when employees possess career concerns. The notion of career concerns refers to the situation where current employee behavior affects future compensation, such that employees face incentives to adjust current behavior to maximize future compensation. While nothing in the theory of career concerns necessarily implies goal conflict between firms and employees – some have even argued that career concerns could help align incentives (Fama 1980) – in practice, many types of career concerns can directly contribute to such conflicts. For instance, Hölmstrom (1999) showed that when employees are concerned about returns to their human capital and firms about financial returns, career concerns become irrelevant only when the private returns to human capital and the financial returns to the firm are complementary. Similarly, a risk-averse manager might prefer not to invest in a risky project to avoid the risk failure, but for the firm, only a positive investment yields a possibility of return (Aghion et al. 2013). There is therefore a wide a range of cases where the two returns may be misaligned, and such misalignment can substantially complicate firm adjustments to environmental change.

To alleviate goal misalignment, firms often rely on formal contracting. For instance, Simon (1957), in sketching a theory of firm behavior, conceived of an employment relationship as an incomplete contract where an employee foregoes her own preferences about behavior and does the bidding of the employer (i.e., pursues firm goals) in return for an inducement (i.e., wages). His account relies on a "zone of acceptance" where the employee accepts the authority of the employer. Simon's discussion does not presume that the contribution of the employee can be taken for granted once the inducement is provided. He devotes extensive attention to the problem of organization identification, i.e., how an organization can get employees to identify with and pursue organizational goals while setting aside their own interests. However, the theory nonetheless assumes that only full-time employees can be expected to put organizational interests ahead of their own. Temporary workers and external contractors are not expected to identify with and internalize the organization's goals. The theory of administrative behavior is thus primarily concerned with explaining how and why large organizations can coordinate actions across several individuals with presumably varying interests and goals even as environmental changes shift those interests and goals, along with task characteristics. The inducements-contributions equilibrium and the zone of acceptance of the firm's authority are critical building blocks in explaining this success.

The notion of long-term employment contracts as a solution to goal misalignment problems is also echoed in the work on human capital. Theories of human capital argue that individuals who care

about preserving their mobility across firms – e.g. employees with reputational career concerns – may be unwilling to acquire firm-specific skills or perform tasks which will only be measurable inside the firm (Campbell et al. 2012). As a result, firms requiring firm-specific investments from their employees have devised long-term contracts that guarantee employment following skill acquisition (Becker 1964). However, since long-term contracts reduce recruitment flexibility for firms, many are also supplementing such contracts with a parallel set of temporary contract arrangements designed for tasks that rely primarily on general knowledge applicable in many firms (Barley and Kunda 2006). Depending on their operations, some firms are even devising hybrid contracts that embody elements of both types – long-term and temporary – each suited for a specific set of task characteristics (Rousseau 2005).

A different approach based on agency theory is concerned primarily with how the separation of ownership and control impacts incentive alignment between firms and employees (Jensen and Meckling 1976) and argues that the core role of the employment contract is to establish such alignment. Incentive alignment can be achieved through monitoring, rewards and/or the allocation of asset ownership specified in the contract (see Eisenhardt 1989 for a review). Environmental changes that are not built into the contract already must be addressed by changing one or more of the alignment mechanisms. For example, one of the primary insights from this literature is the primacy of risk allocation in aligning firm and employee incentives (Prendergast 1999). While the canonical models highlight a potential trade-off between risk and incentives, where risk-averse employees require additional compensation for bearing the risks of environmental uncertainty, in practice the relationship between risk and incentives is often positive (Prendergast 2002b). This is because in stable environments, firms possess sufficient information on the tasks that they can essentially monitor employee inputs directly and can therefore employ the manager in return for fixed wages. In contrast, uncertain environments require the employee to collect the necessary information to make decisions and therefore preclude the firm from using anything other than outcome-based pay to align incentives – a setup analogous to an arm's length contract (Prendergast 2002a). Therefore a shift in environmental uncertainty may require a shift in the contract terms to ensure that incentive alignment is preserved.

Exploring the problem at a different level of analysis, transaction cost economics (TCE) abstracts from the problems of risk-return tradeoffs and focuses instead on the costs of negotiating and enforcing contracts, particularly in volatile environments (Carson et al. 2006). The primary insight of TCE is that arm's length contracts are not conducive to incentive alignment when the tasks require relationship-specific investments, involve a large amount of uncertainty or are very frequent, because

these features would require regular costly renegotiation of the contract terms and the possibility of hold-up by at least some of the parties to the contract (Williamson 1975). To avoid such costs, the resulting recommendation is that such tasks should be performed by full-time employees rather than external contractors (Teece 1980, 1986; Walker and Weber 1984).

Finally, the knowledge-based view of the firm (Kogut & Zander, 1996) argues that any decisions regarding the boundaries of the firm must take into account the value and specificity of knowledge that the tasks will require to be successfully carried out. Knowledge that is core to the firm's strategy and competitive advantage needs to be protected from competition (Liebeskind 1996). Therefore outsourcing tasks that require this knowledge to be shared (Grant and Baden-Fuller 1995; Mowery et al. 1996) or even delegating those tasks to parts of the organization that may not be able to guarantee its security (Zhao 2006) poses serious risk to the firm. These tasks should therefore be performed by full-time employees whose incentives are aligned with the firm or whose behavior can be monitored closely. In contrast, tasks that do not require such knowledge and can be performed more efficiently by parties external to the focal organization can safely be outsourced using arm's length contracts. As task knowledge requirements and the scope for knowledge appropriation shift, contractual arrangements should shift as well.

The premise underlying the theories discussed so far is that employee loyalty to firm goals can be achieved through effective contracting, namely the choice between an arm's length and an employment contract. However, in practice, adherence to firm goals varies even if contracts remain intact. A small, but growing literature has begun to explore the conditions that give rise to such outcomes. For instance, looking at the behavior of contractors in an IT organization, Bidwell (2010) shows that when decisions regarding hiring and project staffing are carried out by different levels in the organization, temporary contractors may end up acquiring firm-specific skills that eventually render their behavior and their employer's dependence on them equivalent to full-time employees. This can happen even if the contractual arrangements remain unchanged. Similarly, a growing literature on relational contracts highlights the importance of mutual understanding of rules and norms between employers and employees as a way of overcoming the limitations of formal contracts and ensuring incentive alignment in the face of changing environmental circumstances (e.g. Baker et al. 2002). However, these literatures focus on explaining how organizations may (deliberately or not) overcome the limitations of formal contracts to enable firms and employees to respond with a richer set of behaviors following environmental changes. In contrast, this paper seeks to explore the question of

when external environmental shocks are likely to trigger changes in employee behavior in the first place.

THEORY AND HYPOTHESES

In developing our theory about the conditions under which employee behavior switches from organizational goals to career concerns, we make two important assumptions. First, we assume that by default, employees focus on organizational goals, but remain vigilant to triggers to their career concerns. As depicted in Figure 1, employees are in equilibrium when they are in the shaded area represented by organizational goals. We believe this to be a reasonable assumption for at least two reasons. First, employees typically spend more time in their current jobs than in looking for new jobs. Data from the Current Population Survey administered by the Bureau of Labor Statistics reported that the median number of years that wage and salary workers had been with their current firm was 4.2 years. In comparison, the same survey notes that the average worker spent 78 percent of the weeks between the ages of 18-48 employed in a job, 5 percent of the weeks without a job but searching for one, and 18 percent of the weeks unemployed and not searching for a job. Second, career concerns are often aligned with organizational goals, i.e., the same behaviors allow the employees to achieve their own career goals alongside the organization's goals. It is only when the goals are misaligned that career concerns become a problem for the firm. While goal misalignment can often lead to employee exit (Simon 1957), we recognize the possibility that employees might stay and pursue career goals. For instance, the time an individual spends on the job looking for another job or performing activities that contribute only to her outside employment prospects instead of firm goals are instances of career concerns that drive a wedge between employee behaviors and organizational goals. Our theory attempts to shed light on what causes such wedges and the subsequent changes in employee behavior.

Second, we assume that employees view firm goals instrumentally – firm goals are means to the achievement of career concerns rather than ends in themselves. Consequently, we predict that employees will explicitly pursue firm goals only if their personal rewards (current and future) depend on the firm's achievement of its goals (Hölmstrom 1999; Simon 1957: 145). In contrast, when rewards are only loosely tied to firm goal achievement, we predict that the shadow of the labor market will become the dominant influence over employee behavior. We focus on the situation where such loose coupling exists, and examine the triggers that shift employee focus between the two modes.

The key question is when does the pursuit of organizational goals undermine the pursuit of career goals, i.e., make employees focus on their outside options rather than career growth and

promotion within the current organization. We surmise that this will be most salient during episodes of environmental change and performance crises. We theorize that environmental changes – such as changes in customer appropriability that we study here – and firm performance shocks can each introduce uncertainty for the employee regarding their growth prospects within the firm and the viability of the firm as a going concern. In turn, the changes in the uncertainty can alter employees' incentives to adhere to organizational goals. We seek to theorize how these changes might increase the salience of employee goals at the expense of firm goals.

Environmental change

Environmental changes have the potential to alter the inducements-contributions equilibrium of employees. Some of the most common types of environmental changes facing firms in dynamic environments are changes in customer base and needs[2] (Christensen and Bower 1996). The customer base is a crucial source of stability and continuity for firms. Customers are important stakeholders on which firms depend for resources (Pfeffer and Salancik 1978). Without customer patronage, the very viability of the firm as a going concern is threatened. Responding to customer base changes is therefore central to preserving performance and ensuring firm survival.

However, relationships with customers – particularly in professional services firms – are often embedded in the individual ties between the client's and the firm's employees (Sorenson and Rogan 2014). This is not only a direct result of social interaction that necessarily occurs at the individual level, but also the frequent tailoring of services and routines to fit the needs of specific clients (Dunn and Mayhew 2004; Rosen 2010; Rosen 1983). For instance, lobbying organizations not only encourage lobbyists to develop expertise in their clients' areas of interest, but often even recruit lobbyists specifically for the needs of individual customers (Drutman 2015). While close social interaction and service tailoring can increase customer satisfaction and willingness to pay (Chatain 2011), these relationships and knowledge of customer needs reside with individual employees. As a result, employees are often in the position to appropriate those relationships if they choose to move to another organization and take their customers along (Raffiee 2017).

[2] This does not imply that this is the only environmental change that matters. Other changes such as in government regulation or technological change are perhaps important as well. In addition, environmental changes are not necessarily orthogonal to firm performance shocks (discussed below). Often, environmental change may lead to performance shocks. We concede this possibility while also recognizing that performance often responds to environmental shocks with lags or performance might be affected only indirectly via changes in employee behavior. In these latter cases, environmental changes might act as alarms alerting firms to the possible breakdown in the equilibrium between the employee and the firm.

We theorize that changes in the customer base that change customer appropriability play an important role in employees' career concerns. Greater customer appropriability can increase both the outside employment options for employees and their bargaining power in negotiating wage increases with their current employer (Dokko and Rosenkopf 2009). As a result, the rewards associated with satisfying customer needs can start to exceed the rewards provided by the organization for pursing its goals, leading to an increase in employee career concerns.

For instance, consider an exogenous change in customer base or needs such that the learning and capabilities of the employees vis-à-vis the client are threatened. Existing accounts suggest that firms double down and work harder in trying to retain remaining customers even if the base is shrinking or their needs are changing. This is because firms often have neither the capabilities nor the incentives to adapt to such customer shifts (Henderson and Clark 1990). Organizational inertia and cognitive blinders hamper adaptive responses at the firm level (Kaplan and Henderson 2005). The same accounts, however, present a different picture at the employee level (Burgelman 1994). If changes in client needs change the value of the employee's knowledge and skills in serving those clients, they also affect the appropriability of those relationships and employee incentives to serve them. For instance, Christensen (1997) in recounting the history of the disk drive industry notes that while Seagate Technologies (a leading manufacturer of 5.25inch rigid disk drives) exhibited all the symptoms of inertia, a group of its engineers acted on the expected growth of the portable computer customer segment and the need for smaller disk drives (3.5inch). On their own initiative, some engineers developed a disk drive designed to meet the needs of this new customer segment. Their efforts, however, were not valued in Seagate which led them to depart, found a new company named Conner Peripherals to pursue this opportunity and take their new clients with them.

The above example is a clear illustration of career concerns wherein one group of employees left the firm to follow their customers' needs and capitalize on their valuable skills. An interesting question is how the employees that stayed on at Seagate might have altered their behaviors to pursue their career concerns at the expense of organizational goals, if at all. The ability of the remaining employees to appropriate their customer relationships may have played a role in deciding who followed the new customers and who stayed. However, because changes in behavior within the firm are harder to observe than departures, it has not received the theoretical attention that it deserves. Therefore we argue that changes in customer appropriability shift employee focus between organizational goals and career concerns such that,

Hypothesis 1: *Increases (decreases) in the appropriability of customer relationships are associated with increases (decreases) in employees' career concerns.*

Firm performance shocks

A performance shock is one where the performance of the organization falls below (or above) aspiration levels (March and Shapira 1987) be it with respect to historical performance or performance relative to peers (Greve 1998). Much of the existing literature focuses on how the behavior of the employee (or managers) changes in the face of performance shortfalls. The principal thesis is that employees exhibit more risk seeking behavior to recover performance. This is akin to the behavior of a gambler who escalates her bets in the face of mounting losses. There is evidence across a wide variety of phenomena and contexts that employees indeed engage in greater risk taking when performance falls below aspirations (Bromiley 1991; Iyer and Miller 2008; Miller and Chen 2004). The focus on changes in employee behavior, in the parlance of Simon (1957), reflects the efforts of employees to alter behavior in the face of disturbances in the zone of acceptance. A performance crisis risks the inducement promised to the employee and increased risk taking represents contributions that will increase the likelihood that the inducements will continue to be paid.

As is apparent from the prior discussion, the literature on employee behavior in the face of a performance crisis focuses on only one side of the coin, i.e., the efforts of the employee to alter behavior to recover performance. The other side of the coin is that the employee switches focus to her own goals because the pursuit of organizational goals may no longer be aligned with her longer-term career goals. The performance crisis introduces uncertainty into the continued viability of the organization. The question here is whether an alternative behavioral response might be to focus on outside job options. Indeed, there is anecdotal evidence confirming this effect. In the wake of Arthur Andersen's involvement in the Enron accounting scandal, the audit employees jumped ship to competitor firms and their clients followed them too (Blouin et al. 2007). While this case highlights the likelihood of employee mobility following a crisis, employee departure is likely to be the final and not even a necessary point in the employee's goal focus shift. We are interested in exploring these behavioral changes.

We surmise that performance crises within organizations increase the salience of the outside labor market for employees. The uncertainty about whether the organizational equilibrium in inducements and contributions can be maintained can raise the salience of behaviors geared to getting another job and correspondingly reduce the salience of behaviors that attain organizational goals.

Conversely, a positive performance shock is likely to reduce the salience of the outside labor market because of the reduction in uncertainty for the firm. Thus, we hypothesize,

Hypothesis 2: *Increases (decreases) in firm performance are associated with decreases (increases) in employees' career concerns.*

In sum, the two hypotheses relating environmental change and performance shocks to employee goal shifts are not meant to be exhaustive though both triggers are expansive in their scope. Other triggers that might have similar effects on employee goals include CEO changes, technological disruptions, and discontinuous regulatory changes. The following section outlines the empirical context within which we sought to test these hypotheses.

EMPIRICAL CONTEXT

We test our predictions in the context of US sell-side security analyses provided by US banks and brokerage houses. The role of security analysts is to provide earnings forecasts and issue buy/sell/hold recommendations on the stocks that they track. The literature documents the presence of optimism bias in analyst forecasts and recommendations (Hong and Kacperczyk 2010; Michaely and Womack 1999). On average, consensus forecasts are systematically above the true earnings of organizations (Chopra 1998; Hong and Kacperczyk 2010). Part of this optimism may be driven by cognitive biases (Bondt and Thaler 1990) and analysts' desire to increase their access to the security firms' management (Ke and Yu 2006). However, the preponderance of evidence suggests that the main source of optimism is the conflict of interest between the investors who consume the analysis and the firms whose equity/debt are underwritten and traded by the same brokerage houses that also employ the analysts (Hong and Kubik 2003). Optimism helps brokerage houses and investment banks with underwriting capabilities earn brokerage commissions and secure underwriting business in the future (Ljungqvist et al. 2006, 2009). In turn, these institutions provide analysts with (implicit) incentives in the form of bonuses and promotions to exhibit optimistic biases not only on stocks underwritten or traded by their brokerage houses, but also on other stocks that their brokerage house may underwrite and trade in the future (Fang and Yasuda 2009; Hong and Kubik 2003; Michaely and Womack 1999)[3]. As a result, consensus forecasts among analysts following the same stock are usually above the true value (Chopra 1998; Hong and Kacperczyk 2010) and analysts working for brokerage houses with

[3] To address the potential conflict of interests between investment banking and sell-side research departments, a number of regulations known collectively as the Global Analyst Research Settlement have been introduced in the second half of 2002. These regulations aimed to reduce the interaction between research and investment banking departments, and introduced strict disclosure requirements to improve the transparency of published research. However, the regulations did not succeed in fully eliminating the conflicts of interest facing analysts (Kadan et al. 2009).

underwriting or brokerage contracts end up issuing significantly more optimistically biased forecasts on those stocks than unaffiliated analysts (Cowen et al. 2006; Michaely and Womack 1999).

At the same time, however, the incentives for optimism do not typically result in an arms race on optimism. The total deviation of consensus from the true value is usually limited and cases of runaway optimism are very rare. This raises the question of what limits excessive bias in the industry. The most common explanation for a ceiling on bias is the personal reputation of analysts (Fang and Yasuda 2009). Following the announcement of true earnings, it is difficult if not impossible for the outside labor market to separate intentionally optimistic forecasts from simply inaccurate ones and high performance on both dimensions is impossible as they are by construction negatively correlated[4]. Moreover, across successive forecasts, investors can learn about analysts' error tendencies, especially if they are systematically biased in one direction, and discount their optimistic forecasts. The benefits of optimism, therefore, crucially rely on the analyst's overall reputation for accuracy, creating scope for career concerns. As a result, in the outside labour market for analysts, only accuracy is a signal of ability because optimism provides a murky signal that is unable to separate strategic bias (to facilitate organizational goals) from poor ability. Thus, in this context we have two negatively correlated behaviors – optimism and accuracy – that map to organizational goals and career concerns respectively.

Empirical evidence suggests that career concerns do in fact play an important role in curbing optimism. For instance, Hong and Kacperczyk (2010) show that exogenous increases (decreases) in the number of analysts covering the same stock (i.e. competition) significantly increase (decrease) a focal analyst's forecast accuracy on that stock and curb (boost) her optimism. Similarly, top ranked analysts in annual industry-wide rankings (e.g., Institutional Investor Magazine) are more accurate and less likely to issue optimistic forecasts even during IPO/SEO booms that see the average analyst err on the side of optimism (Fang & Yasuda, 2009). Together, these dynamics allow us to map analyst forecast behaviour (optimism and accuracy) to their pursuit of organizational goals or career concerns.

METHODS

Before we can test our hypotheses, we need to empirically establish that our empirical context is fit for our purpose. This involves a series of preconditions. First, we need to establish that securities analysts face two goals – internal promotion in return for pursuing firm goals and external mobility

[4] Forecast optimism is measured relative to the consensus (average of all forecasts) rather than the true earnings of a stock, while accuracy is measured relative to the true earnings (the absolute deviation of a forecast from true earnings). Since on average, consensus forecasts are already optimistic (i.e. above true earnings), optimism relative to the consensus automatically implies below average performance on accuracy. We therefore refer to forecasts above the consensus of analysts following the same stock as *Optimism*, and to deviations of forecasts from the true values as *Error* (or *Accuracy*).

(career concerns). Second, internal promotion and mobility cannot be simultaneously pursued. Third, we need to demonstrate that accuracy maps to external mobility or career concerns and optimism maps to internal promotion in return for pursuing organizational goals. Finally, we need to empirically demonstrate that analysts are aware of these trade-offs and act accordingly. We use a combination of measurement construction, use of the prior literature, and a battery of empirical tests to establish these four preconditions. The first part of the methods section is devoted to establishing these claims. We begin by describing our empirical approach and our identification strategy to mapping accuracy and optimism onto analysts' career goals. We then describe our data and the final sample used for the rest of our analyses. The results of the mapping and the validation and robustness checks follow thereafter. The second part of the methods section then outlines the approach to testing our main hypotheses.

Empirical Approach & Identification Strategy

A key source of career concerns is employee reputation in the external labour market that dictates their outside options. If direct measures of reputation and outside options were available in our data, we could test their mapping onto accuracy and optimism directly. Because such measures are absent in our data, we pursue the next best option of testing the effects of analyst forecast performance on their mobility across firms, assuming that such mobility is a reflection of the analyst's perception in the labour market and her outside options. Since mobility events are not, in general, exogenous, we rely on a quasi-natural experiment identified by Hong and Kacperczyk (2010). Hong and Kacperczyk (2010) use mergers and acquisitions among banks and brokerage houses as an exogenous source of employment termination. As the authors document, such mergers typically result in redundancy, especially in cases where both houses employ analysts covering the same stocks, and the merged entity resolves this redundancy by dismissing the target house analysts and retaining the acquiring house analysts. While dismissals are not necessarily exogenous to analyst pre-merger performance, the mergers themselves are likely to be exogenous. We can therefore use analyst pre-merger performance to examine the relationship between analyst performance and job outcomes without worrying about the analysts adjusting their performance in the expectation of impending job search[5].

We examine this relationship in two ways. First, we study which analysts are made redundant following a merger. If optimism and accuracy map onto organizational goals and career concerns respectively, we would expect that the acquiring house, which is chiefly responsible for dismissal decisions, would find it difficult to separate analysts that were optimistic by design from those who

[5] While analysts may hold expectations regarding the possibility of a future merger occurring, these expectations are most likely to arise within a year of the merger date, and are unlikely to stretch to multiple years. We use three-year averages of all variables to reduce the effects of expectations on analyst behaviour.

were simply inaccurate, and will therefore treat both equally, eliminating any career benefits that optimism may have had prior to the merger. Accuracy, however, will remain important in securing retention. Second, conditional on dismissal, we examine how pre-merger accuracy and optimism affect analysts' chances of securing new employment. Here we again rely on the same logic that external parties will find it difficult to separate intentionally optimistic analysts from inaccurate ones, leading to a negative effect of inaccuracy and optimism on job search success. However, since both tests are cross-sectional, there may be unobserved heterogeneity between analysts that is correlated with both: their accuracy/optimism and their chances of dismissal/job search success. We therefore replicate our results with two-stage least squares, where we instrument for accuracy in the first stage and examine its effects on dismissal/job search in the second stage.

After establishing the direct effects of accuracy and optimism on job outcomes, we proceed to showing that these trade-offs are salient to analysts, who strategically adjust their forecasts to match their career plans. We implement three tests to demonstrate these effects. First, we estimate a stock-level, difference-in-differences model to test if analysts issue more accurate and less optimistic forecasts on stocks in the period between the announcement that their employer will undergo a merger and the merger's execution than analysts following the same stocks over the same period in non-merging houses. We expect that if analysts are aware of the mapping of optimism and accuracy onto organizational goals and career concerns respectively, they will be cognizant of the potential need to seek external employment and will therefore adjust their forecasts to appear more accurate and less optimistic before redundancy decisions are made.

Second, we compare the three-year pre- and post-move forecast accuracy and optimism of analysts who move during a merger to those who move for other reasons. We predict that because merger-related moves are less likely to be anticipated, we should see no significant changes in analyst forecast accuracy and optimism before the move. However, for other moves, which are more likely to be planned and voluntary than those related to mergers, we expect to see analysts strategically adjusting their forecast performance towards more accuracy and less optimism to obtain new employment. Following the move, we expect a reversal back to lower accuracy and higher optimism in the years directly following the move, relative to the analyst's average forecast performance over her career.

Finally, our third test directly examines the benefits of optimism to analysts' career outcomes within the firm. To the extent that firms reinforce their goals with internal incentives for analysts, we expect that optimistic analysts will be more likely to obtain promotions inside the firm.

The rest of the methods section is organized as follows. We start by describing the data for all analyses in the paper. We then break our analyses down into two parts. In Part I – Mapping Forecast Accuracy & Optimism to Career Concerns & Firm Goals – we describe the measures, models, results and validation checks for our mapping and derive the measures for career concerns and firm goal pursuit that we use in Part II to test our main hypotheses. In Part II, we describe the measures and models that we use to test our hypotheses.

Data

We combine data from four sources. Our primary source is the Institutional Brokers Estimates System (IBES) database, which collects forecasts from nearly all sell-side analysts working for banks, forecasting services, and brokerage houses based in the US. From IBES we obtain a panel of banks and brokerage houses and the analysts they employ, analysts' annual earnings per share (EPS) forecasts and actual realized annual EPS for fiscal years 1983-2015 inclusive. IBES provides several measures, but EPS is the most commonly and regularly issued forecast and therefore captures the largest number of analysts and brokerage houses. To facilitate comparisons across analysts, we only retain the most recent (relative to date of announcement of actual results) annual forecast of EPS submitted by each analyst for each fiscal year.[6] We further use IBES data to track movements of analysts across firms.

To map forecast accuracy onto career outcomes, we use data on mergers and acquisitions between brokerage houses from the SDC Platinum Mergers and Acquisitions database, which covers mergers of 'Investment Commodity Firms, Dealers and Exchanges' under the SIC code 6211. We hand-match all identified mergers with brokerage houses appearing in IBES, identifying a total of 50 mergers where either the bidder or the target are covered by IBES. Of these mergers, we select only those where both the bidder and the target houses are covered by IBES, and whose stock coverage overlaps on at least one stock in the year preceding the merger (i.e. at least one analyst in one house must cover at least one stock that at least one other analyst in the other house covers), as this is what will allow us to establish exogeneity with respect to analyst performance. This leaves us with 21 mergers that we use in Part I of our analysis.

To test our hypotheses on environmental change we obtain annual stock index constituent data from Thomson Reuters and CRSP, and to test our hypotheses on firm performance, we collect data on debt and equity underwriting relationships between banks and equity issuers from SDC Platinum. We

[6] Most analysts issue annual EPS forecasts for the firms they follow. Since the forecast can be issued anytime in the year prior to the firm releasing its true earnings for the year and new information becomes available regularly, analysts issue a number of revisions to their initial forecast throughout the year. The last revision each year is the analyst's final forecast and the one that should best reflect his or her understanding. We also retain controls for the number of revisions each analyst issues each year.

again hand-matched all identified lead underwriters listed in SDC with brokerages appearing in IBES. We used this data to construct annual measures of the pairwise measures of underwriting relationships between specific stocks and banks.

Finally, we obtain firm-level controls from CRSP. We collect monthly prices, returns, shares outstanding and industry classification. Therefore, to be included in our final sample, each bank or brokerage house must have at least one analyst reporting to IBES, and each stock that is followed by an analyst in IBES must also have valid data in both CRSP and COMPUSTAT. We follow prior work (Hong and Kacperczyk 2010) and exclude stocks with (split-adjusted) prices below $5.

Our final sample at the analyst-year level is a panel for the period 1983-2015 containing earnings per share (EPS) forecasts submitted by 22,235 analysts following 14,324 firms and employed by 1,204 unique brokerage houses. Analysts typically follow multiple firms, but specialize in specific industries. On average, in our data, each analyst covers 9.2 firms in 2.5 industries as defined by 2-digit SIC codes. Analyst mobility across firms is relatively high - the median analyst experiences at least one move during her career. The number of brokerage houses whose analysts contribute earnings forecasts has also grown substantially, from 91 in 1983 to 297 in 2015. At the same time, the size distribution of houses (the number of analysts employed) has become more skewed. The mean number of analysts remained relatively stable, but the median fell from 11 in 1983 to 4 in 2015, reflecting the presence of large brokerage houses with many analysts alongside a growing number of boutique houses specializing in particular industries or niche client groups. While smaller brokerage houses typically lack underwriting business, many fund analyst research with trading commissions obtained from clients and therefore face similar internal and external incentives (Groysberg et al. 2011).

Part I – Mapping Forecast Accuracy & Optimism to Career Concerns & Firm Goals

As described above, we follow Hong and Kacperczyk (2010) and use a semi-exogenous shock to analyst employment due to mergers among brokerage houses. However, identifying redundancies is not straightforward because IBES does not supply information on analysts' employment status, and analysts do not submit their forecasts at predetermined dates. We can only infer that a firm employs an analyst when a forecast is submitted. This requires us to use a time window around the merger date to identify analysts who were kept by the newly merged unit and those that were dismissed. Time windows create trade-offs. Using a very long window would lead us to capture analyst departures that were not associated with the merger, but using a short window could lead us to identify more departures than occurred. We chose a one-year window prior to the merger and one-year window after the merger,

with the rationale that analysts supplying annual EPS forecasts would supply at least one forecast each year (most analysts submit multiple revisions of their forecasts).

Using this window, we first identify all analysts employed by both the target and the bidder houses in the year prior to the merger. This yields a sample of 2818 analysts. We then track this group of analysts into the year following the merger and identify which analysts have been kept and dismissed following the merger, and then for those who were dismissed, which analysts moved to a different brokerage house and which failed to secure alternative employment[7] (did not issue any forecast in the entire subsequent year). Of the 2,818 analysts employed by either merging party in the year leading up to the merger, 1,034 were dismissed, of whom 590 found new employment within a year of dismissal and the rest (444) either exit the sample altogether or take longer than a year to find a new job[8] (about half of these find new jobs within three years after the merger date). As Table 1 shows, target house analysts are more likely to lose their jobs in a merger, but they are also more likely to find jobs after dismissal than analysts dismissed from an acquiring house. This suggests that dismissals from the target house are driven more by strategic changes in the merged entity that create analyst redundancies, and less by an attempt by the merged entity to dismiss the lowest performers.

< Insert Table 1 about here >

Dependent Variables

Dismissed. For the sample of 2,818 analysts employed by either merging party in the year leading up to the merger, we create the variable $Dismissed_j$, which takes the value of 1 if in the year following the merger's execution, the analyst is observed to issue at least one forecast for a brokerage house unrelated to either merging party, or is not observed to issue any new forecasts for any brokerage house in the database for the duration of the year, and 0 if the analyst continues to issue forecasts for the merged entity in the course of the year.

Found Job. For the sample of 1,034 analysts made redundant in a merger, we create the variable *Found* Job_j, which takes the value of 1 if the analyst is observed to issue at least one forecast for a different firm (unrelated to the merger) in the year following the merger and 0 if she issues no forecasts for the merged entity or for any other brokerage in the year following the merger.

Explanatory Variables

[7] Note that while the merging banks constitute a small sub-sample of the universe of banks in our database, we measure failure to secure alternative employment using the full universe rather than only the sub-sample.

[8] The I/B/E/S data does not explicitly track mobility; instead, we infer it by assuming that analysts who supply at least one forecast for a brokerage house in a given year are employed there, and those who do not supply any forecasts to any brokerage house in a full year are unemployed that year. However, occasionally analysts are also promoted to Research Director positions in their banks and stop issuing forecasts. Unfortunately, we cannot observe this in our data and end up interpreting such events as unemployment.

Following prior literature, we use analyst-level measures of forecast accuracy (the deviation of the forecast from the true EPS) and optimism (the deviation of the forecast from the consensus that year) as our measures of behaviors that we map onto career goals. We construct three measures: *Absolute Error*$_{jt}$, *Relative Error*$_{jt}$, and *Optimism*$_{jt}$. The first measure, *Absolute Error*$_{jt}$, is the average absolute deviation of an analyst's, *j*, forecasts (across all the stocks she covers in year *t*) from their true values, divided by the stock's price and multiplied by 100 to get a percent error. Because some analysts cover fewer stocks in some years, we take a three-year moving average for each analyst across all the stocks she followed in the current and previous two years.

However, some stocks are more difficult to forecast accurately than others. Therefore, for robustness, we follow Ljungqvist et al. (2007) and construct an alternative measure, *Relative Error*$_{jt}$. This is calculated as the difference between the absolute deviation of a forecast from the realized earnings and the absolute deviation of the median forecast from the realized earnings, scaled by the standard deviation of forecasts for that stock in the same fiscal year. In other words, we use the following formula:

$$\frac{|Forecast_{ijt} - Realized\ Earnings_{it}| - |Median\ Forecast_{it} - Realized\ Earnings_{it}|}{Standard\ Deviation\ of\ Forecasts_{it}} \quad (1)$$

where *i* refers to the stock, *j* to the analyst issuing the forecast, and *t* to the applicable fiscal year. This formula allows us to more accurately compare forecasts both across time for the same stock and across stocks with different number of analysts following it.

Finally, to measure optimism, we again follow prior work (Hong and Kacperczyk 2010) and assign a binary variable taking the value of 1 if an analyst's forecast is above the mean forecast across all analysts tracking the same stock, and zero otherwise. We then take an average across all forecasts the analyst has issued that year and the two previous years and multiply it by 100 to get *Optimism*$_{jt}$ – the percentage of stocks with optimistic forecasts in each analyst's portfolio each year. We also construct a binary variable that takes the value of 1 if the analyst's three-year optimism featured in the top 10% that year, and zero otherwise. This was designed to capture non-linear effects of optimism.

Control Variables

We add controls for the number of stocks in an analyst's portfolio (No. Stocks), the mean number of other analysts following each of the stocks in her portfolio (Mean Coverage), a set of dummies for industry experience (in years) and year dummies. All controls used here and in the rest of the paper are listed and defined in Table 2.

< Insert Table 2 about here >

Models & Analyses

Our baseline model is a linear probability (OLS) model[9] relating the events of dismissal, $Dismissed_{jt}$, and finding a job, $Found\ Job_{jt,}$ to three-year averages of accuracy (as captured by *Absolute* $Error_{jt}$ and *Relative* $Error_{jt}$*)* and optimism (as captured by $Optimism_{jt}$ and *Optimism Top 10%),* along with a range of controls for the sample of analysts made redundant following the merger:

$$Found\ Job_j = \alpha + \beta_1 Accuracy_j + \beta_2 Optimism_j + controls + \varepsilon_j \quad (2)$$

$$Dismissed_j = \alpha + \beta_1 Accuracy_j + \beta_2 Optimism_j + controls + \varepsilon_j \quad (3)$$

If our proposed mapping of accuracy to career concerns is accurate, and if external parties cannot effectively differentiate between intentional optimism and inaccuracy due to low ability, then we expect that following the merger's announcement, accuracy is associated with a lower likelihood of redundancy and optimism with a higher likelihood. And conditional on redundancy, accuracy is associated with a higher likelihood of obtaining a new job while optimism is associated with a lower likelihood. We supplement this analysis with a series of validation and robustness tests below.

Results

Panel A of Table 3 contains the summary statistics for the variables in our tests and Table 4 contains the results from our baseline model. The first three columns test the effects of three-year average pre-merger $Absolute\ Error_{jt}$ of analysts' forecasts on their probability of being dismissed following the merger. Our results show that the effects of pre-merger absolute error positively affect the probability of dismissal, but both average optimism and top 10 % optimism are nonsignificant. Conditional on being dismissed, Columns 4-6 examine the probability of finding a new job. Here we observe a reversal of the effects of Absolute Error, where increases in error negatively affect one's chances of securing future employment. Optimism also becomes negative and significant, suggesting that controlling for accuracy, optimism hurts analysts' chances of securing future employment. Together these results suggest that while accuracy is important in avoiding dismissal and obtaining alternative offers, optimism is more detrimental for obtaining external offers, likely due to larger information asymmetries in the external labor market.

Columns 7-12 replicate the first six columns with the Relative Error measure, which better controls for stock-specific variation in accuracy. The findings mirror those of Absolute Error, but Optimism, while remaining negative, loses statistical significance. Taken together, these results support our argument that accuracy is aligned with analyst career concerns and optimism to firm goals.

[9] Because our dependent variable is binary, we also re-run this model using probit and logit specifications and the results remain qualitatively unchanged (available upon request from the authors).

< Insert Tables 3 and 4 about here >

Despite mergers being unexpected and largely exogenous to analyst forecasts (especially three years prior to the event, which our accuracy and optimism measures capture), the pre-merger forecasts of analysts and their chances of being dismissed or securing new employment may still be correlated with unobserved heterogeneity across analysts that we cannot control for in the cross-sectional analyses. We, therefore, repeat our analyses by instrumenting pre-merger forecasts with two exogenous variables. First, at the merger announcement date, we calculate for each stock the number of days between the most recent forecast and the merger announcement date, and we average this number across all stocks in each analyst's portfolio. Second, at the merger announcement date, we calculate for each stock the number of days between the most recent forecast and the fiscal year-end date, and we also average this number across all stocks in each analyst's portfolio. The logic here is that the merger announcement date is exogenous with respect to the timing of analyst forecasts and the timing of the fiscal year-ends (and earnings announcement dates) for each stock an analyst covers. Therefore, at the merger announcement date, the accuracy and optimism of forecasts will not be subject to analyst manipulation, but will be largely determined by how recent the forecasts are and how much time is left until the forecast accuracy and optimism can be assessed with perfect accuracy. Moreover, following the merger announcement date, analysts will have a chance to adjust their forecasts in preparation for potential dismissal and the need for finding new employment. Yet, their ability to adjust their forecasts will depend on the fiscal year-ends (and earnings announcement dates) of their stocks. If those year-ends (earnings announcement dates) fall within a few months of the merger announcement date, there may be enough time to adjust one's forecasts before dismissal decisions are made. However, if the next fiscal year-ends (and earnings announcement dates) are many months away, the dismissal decisions will be made before the analyst can adjust her forecasts, creating exogenous variation in accuracy and optimism that we can exploit and the effects of which we can relate to one's probability of being dismissed or securing future employment.

We use these instruments in a two-stage least squares approach to estimate the effects of Absolute Error and Relative Error on the probability of being dismissed and finding a job conditional on dismissal. Ideally, we would instrument for both optimism and accuracy. However, our instruments have insufficient power to estimate the effects of both, so we limit our analyses here to just accuracy. Table 5 contains the second-stage results of the 2SLS version of columns 1, 4, 7 and 10 in Table 4. As shown, the instrumented version of these columns confirms the results in Table 4: both Absolute and

Relative Errors increase analysts' likelihood of being dismissed, and reduce their chances of securing future employment conditional on dismissal, supporting our initial results in Table 4.

< Insert Table 5 about here >

Validating the construct-variable mapping

To ensure that our mapping of analyst behaviour to goals is accurate, we perform three additional tests to examine if analysts are aware of the trade-offs they face and adjust their behaviour accordingly. First, if our mapping of forecast accuracy to career goals is accurate and analysts are aware of this mapping, we should also observe that analysts in merging houses will adjust their forecast accuracy and optimism following the announcement of the merger in the expectation of potential dismissal. To test this assertion, we estimate a stock-level, difference-in-differences model to examine if analysts issue more accurate and less optimistic forecasts on stocks in the period between the announcement of a merger and its execution (i.e., closure) in comparison with analysts following the same stocks over the same period in non-merging houses. We predict that analysts in merging houses will adjust their forecasts to appear more accurate and less optimistic following the merger announcement and before the merger execution date than analysts following the same stocks at the same time in a brokerage house not associated with a merger. To ensure accurate comparisons, we test this assertion at the forecast level, regressing the *Absolute* Error_{jt}[10] and $Optimism_{jt}$ of each forecast (with respect to the realized value) on the interaction of merger treatment and a before- and after-merger dummy, along with stock-, year-, coverage- and portfolio size-fixed effects. Table 6 contains the results. As shown in Column 1, we replicate our results for Absolute Error, suggesting that analysts are aware of the trade-offs they face with respect to their forecasts and attempt to improve the accuracy of their forecasts following the merger announcement date. However, in Column 2 we do not replicate the results for Optimism. This is likely because Optimism is estimated with respect to the median of all forecasts (i.e., consensus forecast) in the fiscal year, which is itself affected by the merger. Therefore, the lack of statistical significance for optimism is not unexpected.

< Insert Table 6 about here >

Second, if our mapping of forecast accuracy to career goals is accurate, we should also observe that analysts who plan to move will attempt to boost their profile by strategically lowering their forecast error in the years preceding the move and increasing it back up following a successful move. To verify

[10] Because these analyses are at the forecast level, we are unfortunately unable to estimate this model for Relative Error. This is because the observed forecasts precede the earnings announcement dates, but the median and standard deviation of forecasts is typically estimated at the earnings announcement date. While a rolling median and standard deviation estimations are possible, it is not clear that these accurately capture the consensus among analysts, since analysts may not always update their forecasts as soon as their opinion changes.

this, we run two OLS models with analyst, firm, and year fixed effects regressing annual *Absolute Error*$_{jt}$, *Relative Error*$_{jt}$, and *Optimism*$_{jt}$ on two dummy variables: one taking the value of 1 if it is one of the three years preceding the analyst's move across brokerage houses and zero otherwise, and the other taking the value of 1 if it is one of the three years following the analyst's move across brokerage houses and zero otherwise. Since we can only observe the instance of a move and not the reasons for it, we compare the effects of two types of moves: those that occur during mergers (*3yrs Prior/Following a Merger*) and those that do not occur during mergers, but where analysts find alternative employment within a year after leaving their prior firm (*3yrs Prior/Following a Regular Move*). We expect that moves induced by mergers are less predictable and therefore less susceptible to pre-move strategic adjustment of forecast accuracy than moves that occur outside of mergers. While dismissals can of course play an important role in non-merger-induced moves, we should capture a smaller proportion of dismissals than voluntary moves since at least some dismissals will end in the analyst exiting the industry altogether, whereas all successful moves will be captured with our move dummies. Moreover, dismissals should be less predictable than voluntary moves, leaving less time for strategic adjustment, and given our earlier results from mergers, should be negatively related to accuracy and positively related to optimism – the opposite of our predictions for voluntary moves.

Table 7 presents our results. We find that analysts become significantly more accurate in the three years prior to a Regular Move. While the absolute value of the effect may appear modest (-0.108%), given that the mean absolute error is only 1.157%, this represents a 9% increase over the mean. Similarly, for *Relative Error* we see a 0.2 standard deviation drop in error in the three years prior to the Regular Move. In contrast, there are no significant adjustments preceding a merger, as is expected since mergers are unlikely to be anticipated, especially three years in advance. Following the move, we see a reversal in accuracy and optimism, with Absolute and Relative errors growing, even in some cases for those moving due to a merger. While, there are no significant reductions in Optimism prior to the move, we do observe a significant increase following a planned move (see column 6).

< Insert Table 7 about here >

Finally, if optimism maps onto firm goals, we should observe that controlling for accuracy, optimism helps analysts secure internal promotions. A common measure of such promotions is assignment to high-profile stocks due to their greater potential rewards from trading and underwriting (Hong and Kacperczyk 2010; Hong et al. 2000). Following prior literature we identify such stocks as those that are have a capitalization of $5 billion or more or are covered by 20 or more analysts (Hong

and Kubik 2003). We then sum the number of such stocks each analyst covers in her portfolio in any given year and use these sums as our dependent variables.

We then estimate an OLS model with analyst, firm, and year fixed effects regressing the number of Top Stocks either by Analyst Coverage (No. Top Cov. Stocks) or by Capitalization (No. Top Cap. Stocks) on the accuracy and optimism measures along with controls for the mean number of revisions issued that year, the number of analysts the firm employs, whether the bank ranks among the top 50 banks by underwriting proceeds that year, and sets of dummies for the number of stocks in an analyst's portfolio and her experience in the industry. Our results are reported in Table 8. Columns 1-4 show that while accuracy helps secure promotions to better stocks, but controlling for accuracy, Optimism remains positive and significant for both securing assignments to highly covered stocks and high capitalization stocks. Columns 5-8 replicate the first four with the Relative Accuracy measure, and suggest that while helping secure highly covered stocks, this measure ceases to be important in securing high-capitalization stocks. Finally, while the magnitudes in all specifications remain relatively low – an analyst needs an increase between 10% and 30% in *Absolute Error* to obtain one additional promotion to a high-profile stock – the values are nevertheless large relative to how few such stocks exist. The median number of such stocks in an analyst's portfolio is 1, with a mean between 2 and 3. Therefore, an additional stock represents a doubling of the median and a 30-50% increase relative to the mean.

< Insert Table 8 about here >

In sum, our results, in combination with the evidence from prior work, support the mapping of accuracy onto analyst career concerns and optimism onto firm goals. We recognize that this mapping is certainly imperfect. Analysts may occasionally benefit from optimism even when securing external employment (Hong and Kubik 2003). Also, firms certainly require at least a basic level of accuracy from their analysts for their forecasts to remain credible and attract underwriting and brokerage business (Krigman et al. 2001; Ljungqvist et al. 2006). We only make the limited argument that the tendency towards optimism provides relatively greater benefits to firms, while the tendency towards accuracy has a similar effect on analyst careers. Next, we proceed to describe our methods to analyse the conditions that induce analysts to systematically shift their focus between accuracy and optimism.

<u>Part II – Triggers that disturb the equilibrium between firm goals and career goals</u>

Having established the mapping of forecast accuracy onto career concerns and optimism onto firm goals, we now turn to testing for changes in analyst goal pursuit following external shocks. As discussed in the Theory section, we assume that the observed analyst-firm matches represent aligned individual and firm goals, and analysts are more likely to follow firm goals than their own career

concerns. Relative to the equilibrium base case, we then propose that environmental and performance shocks reduce goal alignment between firms and analysts, and increase the likelihood that analysts switch to pursuing their career concerns instead of firm goals. Specifically, we expect that controlling for analyst-firm fixed effects, changes to the appropriability of an analyst's customer base will lead to heightened (dampened) accuracy and lower (higher) optimism due to increasing (decreasing) employee returns to pursuing their career concerns. By the same token, negative (positive) shocks to firm performance will be associated with heightened (dampened) career concerns in the form of higher (lower) accuracy and lower (higher) optimism among the affected analysts driven by their perception of these shocks as a reduction (improvement) in the alignment of firm and analyst goals.

Dependent Variables

To test the hypotheses, we continue to use as our dependent variables the three key explanatory variables from our goal-behavior mapping exercise in Part I of the methods section: *Absolute Error*, *Relative Error* and *Optimism*. We keep the same formulas for these measures as before, but instead of using the three-year averages of these measures, we now rely on single-year averages for each analyst. We do this to ensure that our dependent variables are measured in the same time period or in the time periods following the time period in which we measure our control variables.

Explanatory Variables

Environmental change. To capture environmental change pertaining to changes in customer appropriability we use changes in a covered stock's institutional ownership relative to retail ownership. We expect analysts' relationships with institutional investors to be more appropriable than their relationships with retail investors for at least three reasons. First, institutional investors are more likely than retail investors to develop long-term relationships with specific sell-side analysts. Unlike retail investors who may only obtain access to analyst reports, many large institutional investors have a nearly unlimited and direct access to analysts with whom they regularly discuss investment ideas and company information. Second, because sell-side research is provided mostly free of charge to investors, the most appropriable source of revenues for analysts stem from institutional investors who can choose to reward their preferred analysts by routing their trades through the analysts' banks in what is known as "soft-dollar arrangements" in the industry. These revenues constitute measurable rewards for analyst services and if an analyst moves to a different bank, institutional investors loyal to that analyst may choose to re-route some of their trades through the new bank the analyst joins (Gokkaya et al. 2015).Third, institutional investors supply annual rankings of analysts such as the *Institutional Investor All-Star Poll*, which are high-profile events in the industry and confer significant career benefits for analysts who rank

highly on them. While the rankings are formally anonymous, in the weeks leading up to the poll, analysts expend considerable effort to directly persuade investors to vote in their favour. No similarly high-profile analyst ranking exists to represent the views of retail investors.

To measure institutional ownership changes in our data, we could directly collect stock ownership and relate it to analyst forecasts. However, in general, changes in ownership may be slow and largely anticipated, as well as potentially driven by accuracy and optimism (e.g. due to earnings surprises). Instead we capture institutional ownership changes by relying on an important proxy for it – a stock's membership in an index. Since most buy-and-hold institutional investors are bound by strict mandates that track existing indices and many track them even closer than warranted by the mandates (Cremers and Petajisto 2009), we expect that a stock's entry into or exit from an index would lead to large and discreet positive and negative changes in institutional ownership, respectively. However, this is less likely to be driven by analyst optimism and accuracy on the stock, because index membership is a relative measure that depends as much on focal firm performance as on other firms' performance in the market. We use three indices: S&P500, Nasdaq and Dow30, and create two binary variables: *Enter Index* that takes the value of 1 if a stock enters at least one of the three indices in a given year and 0 otherwise, and *Exit Index* that takes the value of 1 if a stock belonged to at least one index in the previous year, but no longer belongs to any in the current year, and 0 otherwise.

Performance Shocks. To capture firm performance, we could collect data on each firm's total revenues and earnings. However, the banks and brokerage houses employing analysts vary widely in size and the number of businesses they are in. Only some of the businesses (e.g. investment banking and brokerage) are directly relevant to sell-side analysts. While the large, multi-business banks are few, they account for the majority of analysts in our sample, rendering total firm performance too noisy a measure to capture its effects on analyst behaviour.

In contrast, bank performance in equity (IPO and SEO) and debt underwriting is one of the most discussed and influential performance metrics available to analysts and investors. Changes in relative bank performance affect future inflows of underwriting business, movements of top analysts and brokerage commissions (Groysberg et al. 2011; Hong and Kubik 2003; Ljungqvist et al. 2009). We therefore follow prior literature and collect annual data on the underwriting deals for each bank from SDC Platinum and code the instances in which a focal bank loses or gains an underwriting mandate from a firm covered by a focal analyst. A gain or loss of underwriting mandate from a firm represents a significant shift in performance. Gaining a mandate signals improvement in firm performance and losing a mandate signals the converse. When a firm chooses a bank as the lead underwriter, the analyst

will be expected to promote the stock and maintain a positive relationship with the firm (Groysberg et al. 2011; Hong and Kubik 2003; Ke and Yu 2006; Ljungqvist et al. 2007; Ljungqvist et al. 2006). As a result, we expect that gaining a mandate will lead an analyst to sacrifice accuracy in favour of issuing more optimistic forecasts. In contrast, losing a mandate will lead to greater accuracy.

Control Variables

We include controls for the mean number of revisions an analyst issues for her stocks, mean number of other analysts following the stocks in her portfolio, the mean stock volatility in her portfolio, the mean capitalization of the stocks in her portfolio and the size of her industry team in the firm. We also include dummies for analyst-firm effects, years, number of stocks, and years of industry experience. All control variables used are defined in Table 2.

Models

In all specifications, we employ OLS models with year and analyst-firm fixed effects, along with the controls listed in each table.

RESULTS

Summary Statistics

Panel B in Table 3 contains the summary statistics and the correlation matrix for the analyst-level regressions. The descriptive statistics for our regression sample (after eliminating observations with missing values and averaging the key explanatory variables across three years) remain in line with the full sample. On average, analysts have 3.5 years of industry experience, work in teams of 6-7 analysts, and follow around 8 stocks each of which is covered by, on average, 17 other analysts. As expected, *Optimism* is positively correlated with *Relative Error* and *Absolute Error*.

Environmental change

Columns 1-3 capture our tests of Hypothesis 1, testing the effects of stock entry and exit into and out of indices on analyst career concerns. We find clear support of our predictions regarding increases in career concerns following entry into the index. However, we find only partial support for the opposite effect when stocks exit the index. The magnitudes here remain substantial. For Absolute Error (which is measured in percent of previous year's stock price), entry into an index results in a -0.04% reduction in error or (-3.5% of the mean). For Relative Error (measured in standard deviations from the median forecast), entry into an index results in a drop of 0.14 standard deviations (-8.8% of the mean). Finally, the effect on Optimism is a 0.25% reduction.

Organizational Performance Shocks

Columns 4-6 in Table 9 present the results of our regressions of forecast accuracy and optimism on changes in firm performance as captured by the acts of gaining and losing underwriting mandates on the stocks followed by the focal analyst, and controlling for the five-year average total underwriting proceeds generated by the stocks in one's portfolio. Here we see significant effects of gaining a mandate on increasing relative error and optimism, and the opposite effects following the loss of a mandate, supporting our predictions in Hypothesis 2. Furthermore, the magnitudes are substantial, ranging between changes of 0.16 to 0.22 standard deviations in Relative Error, and 1 to 1.3 percent changes in in Optimism. However, the effects on Absolute Error are nonsignificant.

< Insert Table 9 about here >

DISCUSSION

This paper offers an initial answer to how employees make dynamic trade-offs between pursuing firm goals and focusing on their career concerns. To answer this question, we draw on the literatures on employment relations and contract design to develop novel predictions regarding employee goal pursuit in the absence of explicit contractual and task changes. Our findings suggest that changes in the environment (in the form of changes in customer base) increase career concerns. In addition, we find evidence that episodes of organizational performance shocks that increase or decrease uncertainty about the viability of the firm as a going concern or the employee's growth prospects within it may also act to boost or dampen career concerns. Together, these findings provide initial, but convergent evidence that employees dynamically switch between career and firm goals depending on the importance of firm- and market-level forces. Several implications of this study are worth noting.

First, we provide a novel explanation for the common failure of governance mechanisms in the face of environmental changes (Carson et al. 2006; Williamson 1985). Rather than being fully within the firm's control, as is the case with selecting the right contract to carry out specific tasks, the employment relation is subject to a range of external circumstances that may unexpectedly shift employee goal pursuit in adverse (for the firm) directions. At the same time, common recommendations in the literature, such as contractual or task design changes, may not be feasible if such changes are frequent (Nickerson and Zenger 2004). Rather, firms may be better off by structuring their contracts and assigning tasks ex ante that would take such fluctuations into account.

Second, our findings suggest that periods of environmental change or negative performance shocks trigger career concerns for employees. A key issue is whether the career concern is a temporary period of disequilibrium for employees that would dissipate once the effects of the environmental change or the negative performance shock wear off. An answer to this question turns on whether the

shock itself is temporary and recovery from the shock is exogenous to the efforts of employees. If yes, then the implications of our findings are less serious. In contrast, if recovery from the shocks is endogenous to the response of employees, a change in behavior toward career concerns can be detrimental to the firm. Instead of focusing on firm goals, if employees turn attention to career concerns during times of crises, there is the real risk that the effects of the crises may be amplified.

Third, our findings on firm performance shocks imply that changes in firm performance can have an important effect on goal alignment between firms and workers. This finding adds nuance to prior conceptions of the employment relation, where goal alignment is typically exogenously set and the direction of causation runs from goal (mis-)alignment to individual and firm performance. In contrast, our findings imply that the causation may also run the other way, where firm performance alters not only individual incentives on a specific goal, but also changes the relative payoffs to efforts on different goals. If so, this reasoning suggests that individual goals are not only amenable to change, but firms may need to account for the indirect effects of their performance on individual behavior when designing new strategies and incentive schemes for employees.

Finally, our approach of focusing on employee behavior provides a blueprint for cross-communication between different theories of the firm. Because these theories often start from incompatible assumptions about individual behavior (e.g., rationality, risk aversion, opportunism), a comparison among them usually entails judgments on which theories agree better with empirical reality. We hope to show that thinking about the conditions under which the incompatible assumptions about individual behavior are likely to be true is a promising alternative path to encouraging discourse between theories.

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Figures

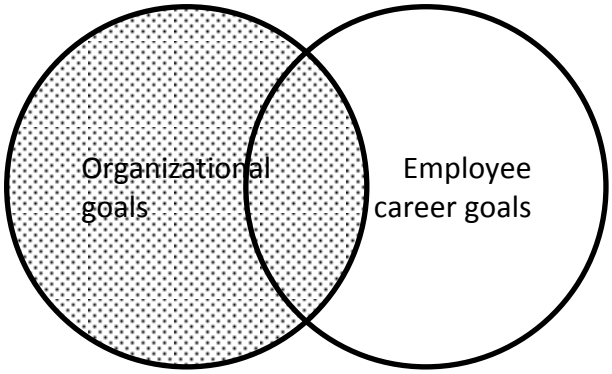

Figure 1 Relationship between organizational goals and employee career goals

Tables

Table 1

Dismissal in Merger					
	Kept in Merged Entity	*Dismissed from Merged Entity*	*Total*	*Prob (Dismissed)*	*Diff (Acquirer-Target)*
Target	534	643	1177	0.546	
Acquirer	1250	391	1641	0.238	
Total	1784	1034	2818	0.367	-0.308***

Job Search Post-Merger					
	Found Job	*Exited*	*Total*	*Prob (Found Job)*	*Diff (Acquirer-Target)*
Target	397	246	643	0.617	
Acquirer	193	198	391	0.494	
Total	590	444	1034	0.571	-0.124***

Table 2

Variable	Definition
Portfolio Size	For each analyst each year, we calculate the total number of stocks in her portfolio each year.
Analyst Tenure	For each analyst each year, we calculate the number of years she has been in the industry (inclusive of movements across firms).
(Mean) Coverage	For each stock each year, we calculate the total number of analysts covering it. For analyst-level regressions, we take an average of these values across all the stocks in an analyst's portfolio each year.
No. Analysts in Firm	For each firm each year, we calculate the total number of unique analysts issuing forecasts.
(Mean) Stock Volatility	For each stock each year, we calculate the standard deviation of its daily returns across the entire year. For analyst-level regressions, we average these values across all the stocks in an analyst's portfolio each year.
(Mean) Stock Capitalization	For each stock each year, we calculate its capitalization. For analyst-level regressions, we average these values across all the stocks in an analyst's portfolio each.
(Mean) No. Revisions	For each stock each year, we calculate the number of revisions an analyst issues on it. For analyst-level regressions, we average these values across all the stocks in an analyst's portfolio each year.
Team Size	The number of analysts covering the same industry in the same firm as the focal analyst.
Top 50 Bank	Indicator variable taking the value of 1 if the bank employing the analyst in a given year falls into the top 50 banks by underwriting proceeds and 0 otherwise.
Target	A binary variable taking the value of 1 if the focal brokerage house was a target in a merger, and 0 if it was an acquirer.

Table 3 – Summary Statistics

Panel A

	Variable	Mean	Std. Dev.	Min	Max	1 Dismissed	2 Found Job	3 Abs. Error %	4 Rel. Error (stdev)	5 Optimism %	6 Portfolio Size	7 Analyst Tenure	8 Mean Cov.	9 Target House	10 Mean No. Rev.	11 Mean Stock Cap.	12 Mean Stock Vol.	13 Team Size	14 Top 50 Bank	15 No. Analysts in Firm
1	Dismissed	0.367	0.482	0.000	1.000	1.000														
2	Found Job	0.209	0.407	0.000	1.000	0.676	1.000													
3	Abs. Error % (1yr)	1.035	1.470	0.000	18.641	0.104	-0.016	1.000												
4	Rel. Error (stdev) (1yr)	1.508	4.442	-31.57	80.250	0.178	0.020	0.359	1.000											
5	Optimism % (1yr)	44.154	27.804	0.000	100.000	0.046	-0.020	0.160	0.145	1.000										
6	Portfolio Size	8.144	7.063	1.000	72.000	-0.128	-0.001	-0.101	-0.071	-0.022	1.000									
7	Analyst Tenure	3.439	3.053	1.000	18.000	0.076	0.066	-0.062	0.005	-0.040	0.270	1.000								
8	Mean Coverage	16.210	8.351	1.000	53.000	0.010	0.013	-0.079	-0.007	0.011	0.033	-0.041	1.000							
9	Target House	0.519	0.503	0.000	1.000	0.316	0.272	0.038	0.008	0.009	-0.013	0.128	0.018	1.000						
10	Mean No. Revisions	3.008	1.524	1.000	14.690	-0.153	0.006	-0.118	-0.153	-0.063	0.262	0.155	0.134	-0.004	1.000					
11	Mean Stock Cap. ($bil)	7.542	15.800	0.001	381.000	0.008	-0.001	-0.114	-0.015	-0.020	0.019	0.053	0.457	0.037	0.089	1.000				
12	Mean Stock Vol.	0.032	0.015	0.007	0.116	0.090	0.067	0.175	0.148	-0.010	-0.107	-0.094	-0.110	-0.064	0.022	0.015	1.000			
13	Team Size	8.043	6.836	1.000	35.000	-0.039	-0.075	-0.005	0.008	-0.015	-0.018	-0.063	-0.002	-0.260	-0.085	0.059	0.311	1.000		
14	Top 50 Bank	0.342	0.477	0.000	1.000	-0.125	-0.104	0.024	-0.041	-0.011	-0.021	0.027	-0.010	-0.259	0.029	-0.028	-0.024	0.232	1.000	
15	No. Analysts in Firm	35.671	34.765	1.000	133.000	-0.192	-0.178	-0.037	-0.039	-0.023	-0.053	-0.068	0.021	-0.410	-0.022	0.039	0.054	0.406	0.514	1.000

Based on a sample of 2,818 analyst observations.

Panel B

	Variable	Mean	Std. Dev.	Min	Max	1 No. of Top Cov. Stocks	2 No. of Top Cap. Stocks	3 Gain Mandate	4 Lose Mandate	5 Enter Index	6 Exit Index	7 Abs. Error %	8 Rel. Error (stdev)	9 Optimism %	10 Portfolio Size	11 Analyst Tenure	12 Mean Cov.	13 Target House	14 Mean No. Rev.	15 Mean Stock Cap.	16 Mean Stock Vol.	17 Team Size	18 No. Analysts in Firm
1	No. of Top Cov. Stocks	3.331	4.779	0.000	89.000	1.000																	
2	No. of Top Cap. Stocks	2.245	3.569	0.000	55.000	0.713	1.000																
3	Gain Mandate	0.040	0.195	0.000	1.000	0.085	0.124	1.000															
4	Lose Mandate	0.036	0.185	0.000	1.000	0.073	0.118	0.763	1.000														
5	Enter Index	0.231	0.660	0.000	24.000	0.112	0.157	0.172	0.161	1.000													
6	Exit Index	0.087	0.344	0.000	7.000	0.161	0.179	0.045	0.037	0.081	1.000												
7	Abs. Error % (1yr)	1.157	1.692	0.000	19.882	-0.081	-0.166	-0.040	-0.040	-0.039	-0.032	1.000											
8	Rel. Error (stdev) (1yr)	1.552	4.848	-144.00	319.000	-0.036	-0.028	-0.021	-0.018	-0.031	-0.010	0.276	1.000										
9	Optimism % (1yr)	44.181	30.222	0.000	100.000	0.000	-0.027	-0.022	-0.021	-0.031	-0.015	0.156	0.071	1.000									
10	Portfolio Size	8.385	8.208	1.000	284.000	0.726	0.616	0.154	0.143	0.259	0.196	-0.110	-0.053	-0.034	1.000								
11	Analyst Tenure	3.540	3.265	1.000	32.000	0.197	0.306	0.100	0.103	0.087	0.103	-0.098	-0.027	-0.042	0.315	1.000							
12	Mean Coverage	17.340	9.538	1.000	68.500	0.465	0.317	-0.019	-0.022	-0.050	0.045	-0.035	0.017	0.043	0.058	-0.007	1.000						
13	Target House	0.035	0.184	0.000	1.000	0.036	-0.005	0.078	0.068	0.009	0.002	0.004	-0.019	0.005	0.029	-0.001	0.014	1.000					
14	Mean No. Revisions	3.260	2.000	1.000	95.000	0.193	0.253	0.057	0.051	0.018	0.118	-0.121	-0.119	-0.070	0.183	0.271	0.099	-0.019	1.000				
15	Mean Stock Cap. ($bil)	7.799	17.183	0.000	613.366	0.195	0.358	0.012	0.013	0.030	0.056	-0.119	0.012	-0.019	0.032	0.101	0.378	-0.026	0.133	1.000			
16	Mean Stock Vol.	0.027	0.012	0.003	0.397	-0.166	-0.192	0.012	0.012	0.135	0.039	0.146	0.059	-0.019	-0.119	-0.090	-0.149	-0.042	-0.016	-0.126	1.000		
17	Team Size	6.667	7.022	1.000	63.000	0.007	0.021	0.096	0.087	0.109	0.039	-0.021	0.032	-0.030	0.013	0.011	0.003	0.026	-0.003	0.005	0.138	1.000	
18	No. Analysts in Firm	13.266	22.821	1.000	285.000	0.008	0.098	0.158	0.155	0.037	0.033	-0.042	0.004	-0.030	-0.001	0.088	-0.039	0.050	0.113	0.030	-0.021	0.543	1.000

Based on a sample of 109,036 analyst-year observations.

Table 4 – Probability of Dismissal & Finding a Job Post-Merger (OLS)

VARIABLES	(1) Dismissed	(2) Dismissed	(3) Dismissed	(4) Found Job	(5) Found Job	(6) Found Job	(7) Dismissed	(8) Dismissed	(9) Dismissed	(10) Found Job	(11) Found Job	(12) Found Job
Abs. Error % (3yr)	0.024*	0.024*	0.025*	-0.022+	-0.020+	-0.020+						
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)						
Rel. Error % (3yr)							0.020***	0.020***	0.020***	-0.011*	-0.010+	-0.010+
							(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Mean Optimism % (3yr)		0.000			-0.001*			0.000			-0.001	
		(0.001)			(0.001)			(0.001)			(0.001)	
Top 10% Optimism (1yr)			-0.020			-0.116+			-0.030			-0.108
			(0.047)			(0.063)			(0.047)			(0.073)
Analyst Tenure (yrs)	0.016***	0.016***	0.016***	-0.010+	-0.010+	-0.011+	0.016***	0.016***	0.016***	-0.010+	-0.010	-0.010+
	(0.003)	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)	(0.003)	(0.003)	(0.003)	(0.006)	(0.006)	(0.006)
Mean Coverage	0.004***	0.004***	0.004***	0.001	0.001	0.002	0.004**	0.004**	0.004**	0.001	0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Target House	0.333***	0.333***	0.333***	0.044	0.044	0.046	0.332***	0.333***	0.332***	0.052	0.052	0.054
	(0.074)	(0.074)	(0.074)	(0.044)	(0.044)	(0.043)	(0.071)	(0.071)	(0.071)	(0.045)	(0.045)	(0.044)
Mean Revisions	-0.047***	-0.047***	-0.047***	0.071***	0.071***	0.071***	-0.044***	-0.044***	-0.044***	0.072***	0.072***	0.072***
	(0.006)	(0.006)	(0.006)	(0.012)	(0.011)	(0.012)	(0.006)	(0.006)	(0.006)	(0.012)	(0.012)	(0.012)
Mean Stock Cap.	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mean Stock Vol.	4.033+	4.047+	4.019+	2.912**	2.812*	2.701*	4.110*	4.124*	4.099*	2.255+	2.218+	2.100+
	(2.075)	(2.062)	(2.078)	(1.053)	(1.031)	(1.057)	(1.961)	(1.949)	(1.960)	(1.165)	(1.160)	(1.169)
Team Size	-0.001	-0.001	-0.001	-0.009**	-0.009**	-0.009**	-0.001	-0.001	-0.001	-0.008**	-0.008**	-0.009**
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.167*	0.161*	0.175*	0.314***	0.365***	0.362***	0.140+	0.132+	0.154+	0.289***	0.335***	0.338***
	(0.068)	(0.067)	(0.071)	(0.062)	(0.063)	(0.063)	(0.077)	(0.074)	(0.079)	(0.058)	(0.063)	(0.060)
Observations	2,573	2,573	2,573	969	969	969	2,527	2,527	2,527	938	938	938
R-squared	0.187	0.187	0.187	0.175	0.178	0.179	0.196	0.196	0.196	0.184	0.186	0.187
No. Stocks Covered Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Merger FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses are clustered at the analyst level.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 5 – Probability of Dismissal & Finding a Job Post-Merger (2SLS)

VARIABLES	(1) Dismissed	(2) Found Job	(3) Dismissed	(4) Found Job
Abs. Error % (3yr)	0.376***	-0.264**		
	(0.090)	(0.081)		
Rel. Error % (3yr)			0.132***	-0.074**
			(0.030)	(0.026)
Portfolio Size	-0.003	0.009*	-0.005**	0.011**
	(0.002)	(0.004)	(0.002)	(0.003)
Analyst Tenure (yrs)	0.022***	-0.015*	0.014***	-0.010
	(0.004)	(0.007)	(0.004)	(0.006)
Mean Coverage	0.008***	-0.003	0.001	0.002
	(0.002)	(0.004)	(0.002)	(0.003)
Target House	0.212***	0.095**	0.278***	0.053
	(0.057)	(0.032)	(0.052)	(0.041)
Mean Revisions	-0.026***	0.055***	-0.010	0.049**
	(0.007)	(0.013)	(0.008)	(0.015)
Mean Stock Cap.	0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Mean Stock Vol.	-2.685	8.209***	0.908	4.422*
	(3.205)	(2.022)	(1.969)	(1.904)
Team Size	0.006+	-0.011***	0.004	-0.010***
	(0.003)	(0.003)	(0.004)	(0.002)
Top 50 Bank	-0.090	0.083+	-0.007	0.003
	(0.057)	(0.043)	(0.055)	(0.046)
Constant	-0.403***	0.712***	-0.013	0.322**
	(0.108)	(0.216)	(0.075)	(0.113)
Observations	2,642	967	2,603	944
R-squared	-0.506	-0.237	-0.212	-0.033
Five-Year Dummies	Yes	Yes	Yes	Yes

Robust standard errors in parentheses are clustered at the analyst level.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 6 – Strategic Adjustment Post-Merger Announcement

VARIABLES	(1) Abs. Error %	(2) Optimism (0/1)
After = 1	0.000	0.020***
	(0.000)	(0.002)
Merged = 1	0.000**	0.004
	(0.000)	(0.003)
After * Merged	-0.001**	0.001
	(0.000)	(0.006)
Revision Number	-0.001***	-0.001***
	(0.000)	(0.000)
Observations	2,304,246	2,304,246
R-squared	0.329	0.109
Stock FE	Yes	Yes
Analyst Tenure Dummies	Yes	Yes
Portfolio Size Dummies	Yes	Yes
Year FE	Yes	Yes

Standard errors are clustered at the stock level.

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

Table 7 – Strategic Adjustment by Mobility Type

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Abs. Error %	Abs. Error %	Rel Error (stdev)	Rel Error (stdev)	Mean Optimism %	Mean Optimism %
3 Years Pre-Merger	-0.016		-0.006		-0.029	
	(0.044)		(0.112)		(0.946)	
3 Years Post-Merger	0.071*		0.013		0.280	
	(0.040)		(0.112)		(0.823)	
3 Years Regular Move		-0.108***		-0.193***		-0.361
		(0.015)		(0.046)		(0.295)
3 Years Regular Move		0.065***		0.229***		1.183***
		(0.017)		(0.047)		(0.322)
Mean No. Revisions	-0.063***	-0.063***	-0.347***	-0.348***	-0.849***	-0.859***
	(0.006)	(0.006)	(0.022)	(0.022)	(0.085)	(0.086)
Mean Stock Cap.	-0.000***	-0.000***	-0.000**	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mean Stock Vol.	36.557***	36.617***	10.212***	10.346***	73.200***	73.497***
	(1.428)	(1.428)	(2.915)	(2.915)	(17.677)	(17.674)
Team Size	-0.005***	-0.005***	0.015***	0.015***	-0.091***	-0.090***
	(0.002)	(0.002)	(0.006)	(0.006)	(0.034)	(0.034)
Top 50 Bank	-0.025	-0.024	0.077	0.079	0.390	0.392
	(0.021)	(0.022)	(0.071)	(0.071)	(0.418)	(0.418)
Observations	105,893	105,893	103,578	103,578	105,893	105,893
R-squared	0.417	0.417	0.317	0.317	0.268	0.268
Portfolio Size Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Tenure Years Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Analyst FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses are clustered at the analyst level. *** p<0.01, ** p<0.05, * p<0.1

Table 8 – Promotions

VARIABLES	(1) No. Top Cov Stocks	(2) No. Top Cov Stocks	(3) No. Top Cap Stocks	(4) No. Top Cap Stocks	(5) No. Top Cov Stocks	(6) No. Top Cov Stocks	(7) No. Top Cap Stocks	(8) No. Top Cap Stocks
Abs. Error % (3yr)	-0.032*	-0.034**	-0.100***	-0.102***				
	(0.012)	(0.013)	(0.011)	(0.011)				
Rel. Error % (3yr)					0.019***	0.018***	-0.000	-0.000
					(0.005)	(0.005)	(0.005)	(0.005)
Mean Optimism % (3yr)		0.001*		0.001*		0.001+		0.001
		(0.001)		(0.000)		(0.001)		(0.000)
No Analysts in Firm	-0.004***	-0.004***	-0.005***	-0.005***	-0.004***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Top 50 Bank	-0.063	-0.063	-0.079+	-0.079+	-0.068	-0.068	-0.082*	-0.081*
	(0.049)	(0.049)	(0.041)	(0.041)	(0.050)	(0.050)	(0.041)	(0.041)
Observations	100,160	100,160	100,160	100,160	97,627	97,627	97,627	97,627
R-squared	0.858	0.858	0.823	0.823	0.858	0.858	0.822	0.822
Portfolio Size Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Experience Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Analyst*Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses are clustered at the analyst level. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 9 – Main Results

VARIABLES	(1) Abs. Error %	(2) Rel Error (stdev)	(3) Mean Optimism %	(4) Abs. Error %	(5) Rel Error (stdev)	(6) Mean Optimism %
Gain Index Stock	-0.038***	-0.142***	-0.245*			
	(0.005)	(0.019)	(0.110)			
Lose Index Stock	-0.000	0.073+	-0.205			
	(0.009)	(0.042)	(0.218)			
Gain UW Mandate				0.020	0.216**	1.003+
				(0.022)	(0.074)	(0.563)
Lose UW Mandate				-0.011	-0.160*	-1.333*
				(0.022)	(0.077)	(0.571)
Avg. 5yr UW Proceeds				-0.000+	-0.000	0.000
				(0.000)	(0.000)	(0.000)
Mean Coverage	-0.004*	0.027***	0.051	-0.004*	0.029***	0.054
	(0.002)	(0.005)	(0.033)	(0.002)	(0.005)	(0.033)
Mean Revisions	-0.064***	-0.383***	-0.979***	-0.063***	-0.379***	-0.975***
	(0.009)	(0.033)	(0.105)	(0.008)	(0.033)	(0.105)
Mean Stock Cap.	-0.000***	-0.000	-0.000*	-0.000***	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mean Stock Vol.	37.939***	7.175*	99.033***	37.575***	5.721	96.518***
	(1.373)	(3.504)	(22.698)	(1.368)	(3.481)	(22.593)
Team Size	-0.002	0.014*	-0.041	-0.003	0.013+	-0.042
	(0.002)	(0.007)	(0.044)	(0.002)	(0.007)	(0.044)
Observations	72,149	72,149	72,149	72,149	72,149	72,149
R-squared	0.512	0.394	0.343	0.511	0.394	0.343
Firm*Analyst FE	Yes	Yes	Yes	Yes	Yes	Yes
Tenure Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Portfolio Size Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses are clustered at the analyst level. *** p<0.001, ** p<0.01, * p<0.05, + p<0.1