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Conditional conservatism and labor investment efficiency

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ABSTRACT

Prior literature documents that asymmetric timely recognition of losses versus gains (also known as conditional conservatism) can induce management to make more efficient investment decisions by mitigating information asymmetry between management and investors and providing early signals about the profitability of projects that are undertaken. In this paper, we investigate the impact of conservatism on an important investment decision that has been overlooked, namely, investment in labor. We find that conservatism is negatively associated with labor investment inefficiency; more specifically, conservatism reduces inefficient investment practices on the labor market, including over-hiring, under-firing, under-hiring, and over-firing. Our results hold after controlling for managerial ability, corporate governance, and other investments.

1. Introduction

In Basu's (1997) seminal work, conditional conservatism (hereafter, conservatism) is interpreted as companies reporting earnings reflecting "bad news" more quickly than "good news", implying systematic differences in earnings reports for bad news and good news periods.[1] Prior literature documents that conservatism can induce management to make more efficient investment decisions in the capital market by mitigating the information asymmetry between management and investors and providing early signals about the profitability of projects that are undertaken (García Lara et al., 2016). We extend this line of research by investigating the impact of conservatism on another important investment decision that has been overlooked, namely, investment in the labor market.

We posit that conservatism improves labor investment efficiency by reducing information asymmetry and moral hazard. First, although labor costs are traditionally considered variable, labor investment also involves significant fixed components such as severance pay, training costs, and hiring costs, and thus financing frictions caused by information asymmetry can hamper labor investment. Conservatism would mitigate labor inefficiency by reducing financing frictions through enabling the writing of better contracts and/or reducing the information asymmetry between managers and capital providers regarding a firm's optimal level of labor investment. Second, by imposing timely recognition of losses, conservatism would act as a disciplining mechanism to prevent or deter inefficient investments by providing early warning signals about the profitability of projects that are undertaken.

Labor investment efficiency is worth studying for three reasons. First, labor is a significant cost component of business operations.

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[1] In this study, we focus on conditional conservatism rather than unconditional conservatism. Unconditional conservatism is news independent in the sense that it describes the accounting process determined at the inception of assets and liabilities that yields expected unrecorded goodwill, and thus is likely to be a response to regulatory or tax incentives in order to minimize punitive or reputational damage. Conditional conservatism as proposed by Basu (1997) results in earnings that capture difficult-to-verify economic losses more quickly than gains, thus generating a downward bias in the value of net assets. It often arises in response to contracting demands such as compensation or debt contracts (Qiang, 2007). Our study assumes that managers will commit to this level of conservatism to counteract the potential costs imposed by contracting parties, leading to more efficient managerial decision making. Therefore, we believe that conditional conservatism is more relevant for the setting in which we examine our research questions.

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Improving labor investment efficiency would reveal much about a firm's overall investment behavior. Labor costs typically represent two-thirds of economy-wide value added (Bernanke, 2004). For example, in the 2016 Annual Survey of Manufactures, the U.S. Census Bureau (2017) reports that payroll and employee benefits in the U.S. manufacturing sector totaled $839 billion in 2016, compared to $168 billion in capital expenditure. Despite the significance of labor investment in inefficient managerial resource allocation, the literature on the impact of financial reporting quality on investment efficiency focuses on more salient but infrequent investments such as capital, R&D expenditures, and mergers and acquisitions (Biddle et al., 2009; García Lara et al., 2016), while ignoring ongoing investments in labor. Furthermore, human capital plays an increasingly important role as the information and technology industries dominate the world economy (Pfeffer, 1996; Zingales, 2000), which makes this study more relevant to the changing economic landscape. Second, labor investment provides a powerful setting for investigating the effect of conservatism on investment efficiency. Due to their variable nature, labor costs can vary significantly from year to year. Additionally, the fixed portion of labor costs is subject to much lower adjustment costs than capital expenditures (Dixit and Pindyck, 1994; Jung et al., 2014), making it less costly for managers to exercise their discretion in labor investments. Both these characteristics contribute to greater variation in labor investments, providing a more powerful setting for testing the impact of conservatism on investment efficiency. Third, since all firms have employees, a broad cross-sectional sample of firms is available, allowing research questions to be tested in a more general setting.

This study extends Jung et al.'s (2014) work, which finds that accruals quality improves labor investment efficiency, by providing additional evidence that conditional conservatism can also offer similar benefits. Conservatism is fundamentally different from the accruals quality employed by Jung et al. (2014). Conservatism measures the extent to which managers exercise their discretion over accruals to expedite the recognition of bad news earlier than good news, while the accruals quality in Jung et al. (2014) measures the degree to which accruals are mapped into cash flows. The studies that consider the interaction of conservatism and earnings management find mixed results. While some studies suggest that accounting conservatism serves as a disciplining mechanism that curtails damaging earnings management activities (e.g., Chen et al., 2007; Gao, 2013), others find that conservatism actually impairs accruals quality (Dechow and Skinner, 2000; Levitt, 1998; Penman and Zhang, 2002).[2] For example, conservatism promotes the deliberate understatement of book value and/or earnings (Goh and Li, 2011) and leads to a strategic understatement of net assets, akin to building cookie jar reserves (Jackson and Liu, 2010). Two recent analytical studies argue that conservatism increases the marginal benefits of earnings management, because it leads to steeper performance pay (Bertomeu et al., 2017) and because it facilitates board interventions, which creates incentives to mislead the board through earnings management (Caskey and Laux, 2017). Therefore, it is an empirical question whether conservatism affects labor investment efficiency in a similar manner to accruals quality as documented by Jung et al. (2014).

To proxy for conservatism, we use a firm-specific measure following the approach of Khan and Watts (2009) and based on Banker et al.'s (2016) model, a modified version of Basu's (1997) piecewise linear regression model that parses out the effect of asymmetric cost behavior. More specifically, asymmetric cost behavior is the phenomenon where costs rise more in response to sales increases than they fall for sales decreases. Banker et al. (2016) argue that without controlling for the asymmetric response of costs to sales increases versus decreases, Basu's (1997) piecewise linear regression may erroneously detect reporting conservatism when what is actually involved is cost stickness. To proxy for labor investment efficiency, we follow Pinnuck and Lillis (2007) and use the absolute value of abnormal net hiring, which is estimated as the deviation of actual net hiring from its expected level.

We find that conservatism is negatively associated with labor investment inefficiency and thus that conservative financial reporting would improve labor investment efficiency. We document that conservatism improves labor investment efficiency by mitigating all four types of labor investment inefficiency, including over-hiring, under-firing, under-hiring, and over-firing. Our results hold after controlling for managerial ability, corporate governance, and other investments.

This study makes several contributions. First, the results of this study contribute to the emerging literature that examines how financial reporting affects firms' investment decisions, and specifically, how accounting conservatism affects firms' labor investment efficiency. This study provides direct evidence of the relationship between accounting information and labor investment efficiency. Second, despite the prior literature on the effect of conservatism on capital formation, it is largely unknown how conservative accounting affects labor investment decisions. This paper fills this research gap by investigating how conservatism affects labor investment efficiency, which is a primary component of production. Third, Jung et al. (2014) investigate the relationship between accruals quality and labor investment efficiency by looking at abnormal net hiring/firing based on the labor investment model developed by Pinnuck and Lillis (2007). Our study also contributes to this line of research by providing evidence that another important attribute of financial reporting quality, namely, timely recognition of losses (conservatism), can improve labor investment efficiency. Compared to accruals quality, conservatism can be a more direct disciplinary mechanism that induces management to make efficient labor investment decisions.

The rest of this paper proceeds as follows. Section 2 summarizes the prior literature. Section 3 develops the hypotheses. Section 4 describes the research design. Section 5 presents the findings on empirical analyses, and Section 6 concludes.

[2] Chen et al. (2007) and Gao (2013) make a strong case for conservatism as a solution to earnings management problems. Chen et al. (2007) show that conservatism lowers earnings management "by dampening firm insiders' incentives to manage earnings" (page 542). LaFond and Watts (2008) argue that conservatism reduces managerial ability to "manipulate and overstate financial performance" (page 448). García Lara et al. (2016) empirically test the assertion that conditional conservatism constrains earnings and find that more conservative firms have a lower probability of being suspected of having engaged in earnings management to achieve earnings benchmarks.

2. Literature review

2.1. The agency problem and labor investment efficiency

Agency theory suggests that due to the misalignment of interests between shareholders and managers, managers may engage in opportunistic activities for their own benefit rather than for their shareholders' benefit (Jensen and Meckling, 1976). One of the most prominent aspects of the agency problem is managerial empire building in which managers increase the size of the firm beyond the optimal level or maintain underutilized resources to increase personal benefits coming from prestige, power, and compensation (Jensen, 1986). In addition, managers may not exert as much effort as they would in a first-best world (Holmström, 1979). Prior literature linking the agency problem to corporate investments investigates mergers and acquisitions (Dittmar and Mahrt-Smith, 2007; Masulis et al., 2007; Titman et al., 2004) and capital investments (Biddle and Hilary, 2006; Biddle et al., 2009; McNichols and Stubben, 2008). These studies link corporate investments to various monitoring mechanisms that can mitigate agency conflicts, including corporate governance, financial reporting quality, and external monitoring provided by analysts. However, the literature on corporate investment behavior mostly overlooks labor investment, despite its economic significance.

There is some evidence that corporate governance shapes labor practices, including worker pay and hiring/firing decisions. For example, Bertrand and Mullainathan (2003) argue that entrenched managers are likely to pay higher wages to workers and are reluctant to trim unproductive workforces in order to enjoy private benefits such as lower-effort wage bargaining and garnering employee loyalty. They test this claim by using antitakeover legislation as a proxy for weakened corporate governance and find consistent evidence that affected firms' wages rise with the passage of antitakeover laws. Similarly, Cronqvist et al. (2009) find that CEOs with more control pay higher wages to workers, and this tendency is more pronounced if workers are closer to the CEO in the hierarchy, geographically closer to headquarters, and associated with a conflict-inclined labor union. These results indicate that managers have a preferred set of labor policies and that corporate governance plays an important role in labor market outcomes.

Some recent studies investigate the link between monitoring mechanisms and labor investment. For example, Jung et al. (2014) find that hiring behavior varies with financial reporting quality. More specifically, they find that high-quality financial labor costs will be largely reflected in SG&A costs. Another closely related study is that of Chen et al. (2011), who focus on the SG&A cost asymmetry to shed light on the impact of the agency problem on corporate resource allocation. [3] According to Anderson et al. (2003), SG&A costs behave asymmetrically: they increase rapidly in response to increased demand while they decrease slowly in response to decreased demand. Drawing on the empire-building literature and the SG&A cost asymmetry, Chen et al. (2011) find that the SG&A cost asymmetry increases with managers' empire-building incentives due to the agency problem and that strong corporate governance mitigates the effects of the agency problem on SG&A cost asymmetry.

More recently, Ghaly et al. (2015) investigate how the investment horizons of a firm's institutional shareholders affect the efficiency of its labor investments and find that long-term investors have greater incentives to engage in effective monitoring, which reduces agency conflicts in labor investment choices. Additionally, Ben-Nasr and Alshwer (2016) find that labor investment efficiency is positively related to stock price informativeness. They argue that stock prices include information that managers do not possess, such as information about future investment and growth opportunities, future demand for the firm's products and services, and financing opportunities, which may affect labor investment decisions. Also, they find that more informative stock prices are associated with better external and/or internal monitoring of managers and hence mitigate the empire-building problem on the labor market (such as over-hiring or under-firing).

2.2. Conservatism as a corporate governance mechanism

Conservatism is viewed as requiring higher verification standards for recognizing good news than for bad news (Basu, 1997; Watts, 2003a,b). Previous research provides ample evidence for the positive governance aspect of conditional conservatism. For example, Ahmed and Duellman (2011) find a positive association between conservatism and board independence. García Lara et al. (2009) find a positive association between conservatism and corporate governance. Also, conservative reporting is believed to alleviate adverse moral hazard problems in the presence of information asymmetry as well as agency costs associated with low managerial ownership (LaFond and Watts, 2008; Roychowdhury and Watts, 2007). Focusing on the banking industry, Leventis et al. (2013) find that well-governed banks engage in significantly higher levels of conditional conservatism in their financial reporting practices, suggesting that accounting conservatism serves as a complement to corporate governance in mitigating the opaqueness and intense information asymmetry that plague banks. Chi et al. (2009) also find that conservative accounting serves as a substitute for other governance mechanisms in alleviating agency problems.

In the area of investment efficiency, Francis and Martin (2010) document that conservatism is associated with more efficient acquisition and divestiture decisions, and this benefit is more pronounced among firms that bear high agency costs. Louis et al. (2012) examine how conservatism affects the market value of excess cash. Since excess cash has the potential to be wasted, the market value of one additional dollar of excess cash holdings is less than a dollar. They find that conservative reporting can mitigate the value discount associated with large cash holdings by encouraging a more efficient use of cash. García Lara et al. (2016) find that more conservative firms are less likely to over-invest or under-invest. More specifically, they argue that, by forcing timely recognition of

[3] The literature on downsizing has used SG&A costs as the primary proxy for slack resources channeled into overhead and staff expenses (e.g., Bourgeois, 1981; Singh, 1986; Wiseman and Bromiley, 1996).

losses, conservatism alleviates under-investment by facilitating access to additional debt for new investments, and it alleviates over-investment by enabling better project selection and earlier abandonment of loss-making projects.

Ahmed and Duellman (2013) hypothesize that because over-confident managers tend to over-estimate future returns from their investments and under-estimate the negative impacts on firms' cash flows, managerial over-confidence results in delayed loss recognition (i.e., less conditional conservatism). As predicted, they find that managerial over-confidence is negatively associated with conservatism, confirming the link between conservatism and investment efficiency.

3. Hypothesis development

Among various measures of financial reporting qualities, we believe that conservatism can capture a first-order effect of reporting quality on investment efficiency. We expect that conservatism improves labor investment efficiency through two channels: (1) reducing information asymmetry between managers and capital providers, and (2) providing a disincentive to engage in inefficient investments through early warning signals about the profitability of projects that are undertaken.

First, conservatism is known to reduce information asymmetry between managers and capital providers (both debt and equity financing), as bad news will be reflected sooner under more conservative reporting. Labor inputs require capital outlay, which involves financing. Being primary decision makers in firms, managers likely possess superior information regarding the firms' operations (Sun and Xu, 2012). That is, information asymmetry exists between managers and capital providers since outsiders have fewer resources for knowing the optimal level of labor for a firm. This information asymmetry might result in inefficient resource allocation. For example, managers may prefer no layoffs or wage cuts when the operating performance is less satisfactory in order to enjoy quiet lives and maintain good relationships with their workforce. Their preferences for a certain set of labor policies can be implemented if they go unnoticed. However, under conservative reporting, bad news will be reflected sooner in earnings and cannot be concealed for long. It will thus be more difficult for managers to justify their reluctance to lay off workers when performance suffers, which implies that labor investment efficiency will be improved under conservative reporting. Along the same line, conservatism could facilitate debt and equity financing through its role in reducing information asymmetry. This ease of access to external financing helps firms hire workers as needed.

Second, conservatism helps trigger early warning signals about the project outcome. Watts (2003a) suggests that conservatism provides directors and shareholders with early signals about the profitability of projects that are undertaken. In case of negative net present value (NPV) projects, such signals could enable managers to intervene in a timely manner and take corrective actions such as abandoning projects or replacing managers. Therefore, conservatism provides incentives (disincentives) for ex ante efficient (inefficient) investment decisions and facilitates ex post monitoring of investment decisions. These incentives should help managers adjust their labor investment in a timely manner.

Following the above arguments, we hypothesize that, by imposing timely recognition of losses, conservatism will act as a disciplining mechanism to prevent or deter inefficient investments in labor. This will result in a level of labor investment that is close to the one justified by a firm's economic fundamentals. Our hypothesis is summarized as follows:

Hypothesis. Conservatism is negatively associated with inefficient investments in labor

4. Methodology

4.1. Measure of labor investment inefficiency

To measure labor investment inefficiency, we first estimate the expected level of net hiring (the percentage change in the number of employees) using model (1), as suggested by Pinnuck and Lillis (2007). The absolute value of the residual from this model, ε, represents the abnormal net hire (*AbsAbNetHire*) and is used as our primary measure of labor investment inefficiency:[4]

$$\begin{aligned} NetHire_{it} = {} & \beta_0 + \beta_1 SG_{it-1} + \beta_2 SG_{it} + \beta_3 \Delta ROA_{it} + \beta_4 \Delta ROA_{it-1} + \beta_5 ROA_{it} + \beta_6 Ret_{it} + \beta_7 Size_{it-1} + \beta_8 Quick_{it-1} + \beta_9 \Delta Quick_{it} \\ & + \beta_{10} Lev_{it-1} + \beta_{11} Lossbin1_{it-1} + \beta_{12} Lossbin2_{it-1} + \beta_{13} Lossbin3_{it-1} + \beta_{14} Lossbin4_{it-1} + \beta_{15} Lossbin5_{it-1} + \varepsilon_{it} \end{aligned} \quad (1)$$

where *NetHire* is the percentage change in the number of employees, *SG* is the percentage change in sales, *ROA* is the net income divided by total assets at the beginning of the fiscal year, *Ret* is the annual buy and hold stock return, *Size* is the log of the market value of equity at the beginning of the fiscal year, *Quick* is the ratio of cash and short-term investments plus receivables to current liabilities, and *Lev* is the ratio of long-term debt to total assets at the beginning of the fiscal year. There are five separate loss bin indicator variables assigned for each 0.005 interval of *ROA* from −0.025 to 0. For example, *Lossbin1* is equal to 1 if *ROA* is between −0.005 and 0. *Lossbin2* is equal to 1 if *ROA* is between −0.010 and −0.005. *Lossbin3, Lossbin4*, and *Lossbin5* are defined in a

[4] We acknowledge that the potential relation between labor and growth as well as conservatism and growth may hinder the interpretation of our results. For example, to the extent that higher growth options represent greater information asymmetry between managers and investors or lenders, conditional conservatism is expected to increase with growth because it is hypothesized as an efficient contracting and governance mechanism. Because firms are expected to hire more workers as they grow, it could be inferred that net hiring and conditional conservatism are positively related. To alleviate this concern, we use *abnormal* net hire, rather than net hire per se, as our dependent variable. Nevertheless, even if it is assumed that abnormal net hire is still positively associated with conservatism through some channels other than growth, this is opposite to and thus works against finding our hypothesized negative relationship between conditional conservatism and abnormal net hire.

similar manner. The model also includes industry and fixed effects and is estimated annually.

4.2. Measure of conservatism

We construct a firm-specific measure of conservatism, *Cscore*, following the approach of Khan and Watts (2009) and based on Banker et al.'s (2016) model, which is a modified version of Basu's (1997) piecewise linear regression model that parses out the effect of cost stickiness.

The original Basu (1997) model is as follows:

$$NI_t = \beta_0 + \beta_1 D_t + \beta_2 R_t + \beta_3 D_t * R_t + \varepsilon_t \tag{2}$$

where NI_t is net income before extraordinary items divided by the market value of equity at the beginning of the fiscal year, R_t is 12-month compound returns ending three months after the end of the fiscal year, to remove the market response to the previous year's earnings from the current economic news, and D_t is an indicator variable that equals one if R_t is negative and zero otherwise. A positive β_3 implies greater conservatism, meaning losses are recognized more quickly than gains.

Banker et al. (2016) modified the original Basu (1997) regression model to parse out the effect of cost stickiness, the phenomenon in which costs rise more in response to sales increases than they fall for sales decreases. Without controlling for the asymmetric response of costs to sales increases versus decreases, Basu's (1997) piecewise linear regression may erroneously detect reporting conservatism when it actually implies cost stickiness. Specifically, Banker et al. (2016) proposed the following model:

$$NI_t = \alpha_0 + \alpha_1 D_t + \alpha_2 R_t + \alpha_3 D_t * R_t + \beta_1 DS_t + \frac{\beta_2 \Delta S_t}{P_{t-1}} + \beta_3 DS_t * \frac{\Delta S_t}{P_{t-1}} + \varepsilon_t \tag{3}$$

where DS_t is a dummy variable that equals one if sales decreased from year $t-1$ to t and zero otherwise, $\Delta S_t/P_{t-1}$ is the sales change from year $t-1$ to t scaled by the market value of equity at the beginning of the year, and the other variables are as previously defined.

We adopt the approach of Khan and Watts (2009) to develop a firm-level measure of conservatism (*Cscore*) by estimating the following annual cross-sectional regression model:

$$\begin{aligned} NI_t = {} & \beta_0 + \beta_1 D_t + R_t(\mu_1 + \mu_2 Size_t + \mu_3 MtB_t + \mu_4 Lev_t) + D_t R_t(\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Lev_t) + \lambda_1 \\ & + (\delta_1 Size_t + \delta_2 MtB_t + \delta_3 Lev_t + \delta_4 D_t Size_t + \delta_5 D_t * MtB_t + \delta_6 DtLev_t) + DS_t(\gamma_1 + \gamma_2 Size_t + \gamma_3 MtB_t + \gamma_4 Lev_t) \\ & + \frac{\Delta S_t}{P_{t-1}}(\gamma_5 + \gamma_6 Size_t + \gamma_7 MtB_t + \gamma_8 Lev_t) + DS_t * \frac{\Delta S_t}{P_{t-1}}(\gamma_9 + \gamma_{10} Size_t + \gamma_{11} MtB_t + \gamma_{12} Lev_t)) + \varepsilon_t \end{aligned} \tag{4}$$

where all variables are as defined previously. Empirical estimators of λ_1–λ_4 are constant across firms but vary each year since these estimates are derived from annual cross-sectional regressions. The *modified Cscore* equals $\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Lev_t$. In other words, the incremental timeliness of annual bad news is a linear function of firm-specific characteristics. Our modified version of *Cscore* controls for the variation in cost stickiness and takes out this variation from the firm-level *Cscore* that Khan and Watts (2009) derived from the original Basu (1997) regression.

4.3. Empirical model

We adopt the investment model used by Jung et al. (2014), who investigate the link between financial reporting quality and labor investment. We use year fixed effects to control for possible macroeconomic factors and industry fixed effects at the two-digit SIC level to control for industry-wide factors affecting hiring decisions. Industry is defined according to the Fama-French 48 industry classifications (Fama and French, 1997). Specifically, we use the following model to test our hypothesis:

$$\begin{aligned} AbsAbNetHire_{it} = {} & \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} \\ & + \beta_8 StdCFO_{it-1} + \beta_9 StdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} StdNetHire_{it-1} \\ & + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it} \end{aligned} \tag{5}$$

Financial reporting quality is first controlled to tease out the effect of financial reporting quality on labor investment efficiency documented by Jung et al. (2014). The composite measure of financial reporting quality (*FRQ*) is constructed using three financial reporting quality variables (*DisAcc*, *DisWCA*, and *DisRev*). Accrual quality can alleviate information frictions and restrain managers' inefficient investment behaviors. We employ the absolute value of discretionary accruals (*DisAcc*; Jones, 1991), discretionary working capital accruals (*DisWCA*), and discretionary revenues (*DisRev*; Chen et al., 2011). Details on calculating these three measures are provided in Appendix B. Other control variables include growth opportunities (*MtB*), firm size (*Size*), liquidity (*Quick*), leverage (*Leverage*), dividend payout (*Dividend*), cash flow volatilities (*StdCFO*), sales volatilities (*StdSales*), tangibility (*Tangible*) and loss (*Loss*). We also include institutional ownership (*Insti*) to control for the ability of external monitoring mechanisms to mitigate market frictions by reducing information asymmetry between managers and investors. Firms' net hiring volatility (*StdNetHire*), labor intensity (*LaborIntensity*), and industry-level unionization rates (*Union*) are further included to control for how much flexibility managers can exercise in hiring decisions. To capture unexpected net hiring originating from other investment decisions such as capital expenditures and R&D expenditures, abnormal other investment (*AbInvest*) is controlled. *AbInvest* is measured based on the investment expectation model as in Biddle et al. (2009), where the sum of capital expenditures, acquisition expenditures, and R&D

expenditures less cash from the sale of property, plant, and equipment and scaled by total assets at the beginning of the year, is regressed on lagged sales growth expressed in the percentage.

5. Empirical results

5.1. Sample

We obtained financial statement data from *Compustat* and stock return data from *CSRP*. We obtained institutional shareholding data from Thomson Reuters' *CDA/Spectrum Database*, and industry unionization data from the *Union Membership and Coverage Database*.[5] To calculate the financial reporting quality measures (*DisAcc*, *DisWCA*, *DisRev*) based on cash flow statement data, our sample period starts in the year 1986, which is when cash flow data became available in *Compustat*. We require firms to have positive assets and sales. Financial firms (SIC codes 6000–6999) and utilities (SIC codes 4900–4999) are excluded due to the different nature of these firms' financial reporting and investments. Our sample consists of all firm-year observations from 1986 to 2014 with the necessary information in *COMPUSTAT* and *CRSP* to estimate all variables, yielding 31,865 firm-years representing 4971 firms. To mitigate the influence of outliers, we winsorize all continuous variables at the 1% and 99% levels. The sample size is reduced when the test requires corporate governance or managerial ability scores (as discussed in Section 5.3.2).

5.2. Empirical results

5.2.1. Descriptive statistics

Table 1, Panel A reports the industry distribution of firm-year observations for the top five industries in the sample. The top five industries represented are Business Services (12.5%), Chips (8.9%), Wholesale (6.3%), Computers (6.2%), and Machinery (5.3%). Descriptive statistics are provided in Panel B. The mean and median values of our primary variable, *AbsAbNetHire*, are 0.164 and 0.105, respectively. Correlations are provided in Panel C. Consistent with our hypothesis, *AbsAbNetHire* is negatively correlated with *Cscore*, providing initial evidence that conservatism is negatively associated with inefficient investments in labor. Correlations among other variables are generally consistent with prior research. For example, similar to findings of Jung et al. (2014), *AbsAbNetHire* is positively correlated with *stdCFO*, *stdSales*, and *stdNetHire*.

5.2.2. Primary results

The primary results of estimating model (5) on the entire sample are reported in Table 2, column (1). The estimated coefficient on *Cscore* is negative and significant (*coeff.* = −0.039, *p*-value < 0.01), suggesting that conservatism is negatively associated with inefficient investments in labor and thus facilitates more efficient net hiring practices. Moving the *Cscore* from the 75th to the 25th percentile decreases the abnormal net hiring by 0.007. Given the mean of *AbsAbNetHire*, 0.164, this decrease represents a reduction of about 4.2% of abnormal net hire, which is economically significant. This result supports the argument that conservatism mitigates labor investment inefficiency.

Consistent with Biddle et al. (2009) and Jung et al. (2014), the estimated coefficient on *FRQ* is negative and significant, suggesting that investment inefficiency in labor can be mitigated by high-quality financial reporting, but it has a smaller magnitude than the coefficient on *Cscore*. For example, moving *FRQ* from the 75th to the 25th percentile decreases the abnormal net hiring by 0.003, which translates into a reduction of about 2.2% in abnormal net hire. As mentioned earlier, this confirms our belief that conservatism may be a primary force driving the improvement in investment efficiency in labor through its direct disciplinary mechanisms that induce management to act in the best interests of shareholders.

Consistent with Jung et al. (2014), most control variables are significantly associated with inefficient investments in labor. Specifically, firms with lower financial reporting quality (*FRQ*), smaller size (*Size*), higher leverage (*Leverage*), more liquidity (*Quick*), no dividend payout (*Dividend*), lower profitability (*Loss*), and lower institutional ownership (*Insti*) tend to have less efficient investments in labor. Consistent with the correlation results, *AbsAbNetHire* is positively associated with *StdCFO*, *StdSales*, and *StdNetHire*, suggesting that greater deviations from the expected level of net hiring are associated with greater volatilities of cash flows, sales, and net hiring practices.

We further examine the association between conservatism and inefficient investment in labor for the over-investment (where the actual net hiring is greater than the expected level) and under-investment (where the actual net hiring is less than the expected level) subsamples and report the results in columns (2) and (3), respectively. The estimated coefficients on *Cscore* are negative and significant for the over-investment subsample (*coeff.* = −0.042, *p*-value < 0.01) and for the under-investment subsample (*coeff.* = −0.040, *p*-value < 0.01). Moving *Cscore* for the over-investment (under-investment) subsample from the 75th to the 25th percentile decreases the abnormal net hiring by 0.008 (0.007), which translates into a reduction of about 4.5% (4.3%) in abnormal net hire, which is economically significant. These results support the argument that conservatism mitigates both over-investment and under-investment in labor.

[5] The *Union Membership and Coverage Database,* available at www.unionstats.com, is an Internet data resource providing private and public sector labor union membership, coverage, and density estimates compiled from the monthly household Current Population Survey (CPS) using BLS methods. Economy-wide estimates are provided beginning in 1973; estimates by state, detailed industry, and detailed occupation begin in 1983; and estimates by metropolitan area begin in 1986. The *Database*, constructed by Barry Hirsch (Andrew Young School of Policy Studies, Georgia State University) and David Macpherson (Department of Economics, Trinity University), was created in 2002 and is updated annually (Hirsch and Macpherson, 2003).

Table 1
Industry distribution, descriptive statistics and correlations.

Panel A: Industry distribution

Industry	Percentage of firm-years
Business services	12.5%
Chips	8.9%
Wholesale	6.3%
Computers	6.2%
Machinery	5.3%
Firms from the Top-5 industries	***39.3%***

Panel B: Descriptive statistics

Variables	N	Mean	Std. Dev.	25th	Median	75th
$AbsAbNetHire_t$	31,865	0.164	0.181	0.047	0.105	0.210
$Cscore_{t-1}$	31,865	0.117	0.150	0.050	0.117	0.194
FRQ_{t-1}	31,865	−0.504	0.291	−0.667	−0.667	−0.333
MtB_{t-1}	31,865	1.840	1.470	1.085	1.431	2.081
$Size_{t-1}$	31,865	5.401	1.898	4.024	5.313	6.675
$Quick_{t-1}$	31,865	1.836	1.930	0.839	1.272	2.155
$Leverage_{t-1}$	31,865	0.189	0.225	0.004	0.127	0.292
$Dividend_{t-1}$	31,865	0.324	0.468	0.000	0.000	1.000
$stdCFO_{t-1}$	31,865	0.064	0.054	0.029	0.050	0.083
$stdSales_{t-1}$	31,865	0.310	0.319	0.107	0.206	0.391
$Tangible_{t-1}$	31,865	0.573	0.444	0.256	0.466	0.772
$Loss_{t-1}$	31,865	0.261	0.439	0.000	0.000	1.000
$stdNetHire_{t-1}$	31,865	0.194	0.191	0.068	0.135	0.249
$LaborIntensity_{t-1}$	31,865	0.011	0.041	0.003	0.006	0.011
$Union_{t-1}$	31,865	0.050	0.099	0.000	0.000	0.056
$Insti_{t-1}$	31,865	0.464	0.292	0.216	0.451	0.693
$abInvest_{t-1}$	31,865	−0.025	0.114	−0.102	−0.039	0.030
MAscore	31,406	0.564	0.271	0.300	0.600	0.800
$Gscore_{t-1}$	15,617	−8.585	2.688	−10.000	−9.000	−7.000

Panel C: Pearson Correlation

Variables	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*	*10.*	*11.*	*12.*	*13.*	*14.*	*15.*	*16.*	*17.*	*18.*	*19.*	*20.*
1. AbsAbNetHire	*−0.05*	*−0.02*	*0.06*	*−0.11*	*0.27*	*0.04*	*−0.14*	*0.14*	*0.10*	*−0.02*	*0.11*	*0.13*	−0.01	−0.01	*−0.08*	*0.04*	*0.02*	*0.07*	*0.00*
2. $Cscore_{t-1}$		*−0.03*	*−0.24*	*−0.59*	*−0.03*	*−0.02*	*−0.21*	*0.15*	*0.11*	*−0.06*	*0.20*	*0.08*	*0.04*	−0.01	*−0.41*	*−0.06*	*−0.06*	*0.09*	*0.12*
3. FRQ_{t-1}			*0.02*	*0.03*	*−0.04*	*−0.01*	0.00	0.01	0.00	0.01	*0.10*	0.00	*−0.01*	*0.03*	*0.03*	*0.01*	*0.05*	*−0.02*	*−0.03*
4. MtB_{t-1}				*0.25*	*0.20*	*−0.15*	*−0.05*	*0.14*	*0.03*	*−0.09*	*−0.10*	*−0.04*	*−0.02*	*−0.09*	*0.17*	*0.11*	*0.24*	*0.08*	*0.07*
5. Size $_{t-1}$					*0.03*	*0.07*	*0.31*	*−0.21*	*−0.13*	*0.05*	*−0.17*	*−0.06*	*−0.09*	*−0.05*	*0.64*	*0.06*	*0.03*	*−0.19*	*0.21*
6. $Quick_{t-1}$						*−0.19*	*−0.13*	*0.08*	*0.04*	*−0.22*	*−0.01*	*−0.01*	*−0.03*	*−0.11*	*0.09*	*−0.03*	*0.11*	*0.14*	*0.09*
7. $Leverage_{t-1}$							*0.04*	*−0.17*	*−0.06*	*0.31*	0.00	*0.13*	*−0.04*	*0.11*	*0.04*	*0.19*	*−0.21*	*−0.04*	*−0.06*
8. $Dividend_{t-1}$								*−0.25*	*−0.18*	*0.19*	*−0.20*	*−0.18*	0.01	*0.18*	*0.12*	*−0.05*	0.01	*−0.24*	*−0.15*
9. $stdCFO_{t-1}$									*0.35*	*−0.16*	*0.17*	*0.14*	−0.01	*−0.10*	*−0.17*	*0.03*	*0.11*	*0.12*	*0.12*
10. $stdSales_{t-1}$										*−0.20*	*0.09*	*0.36*	*0.04*	*−0.06*	*−0.12*	*0.03*	*0.02*	*0.11*	*0.06*
11. $Tangible_{t-1}$											*−0.08*	*−0.09*	0.00	*0.15*	−0.01	*0.19*	*−0.11*	*−0.11*	*−0.11*

(*continued on next page*)

Table 1 (*continued*)

Panel C: Pearson Correlation

Variables	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
12. $Loss_{t-1}$												0.13	−0.02	−0.06	−0.15	−0.03	−0.10	0.03	0.11
13. $stdNetHire_{t-1}$													0.00	−0.05	−0.04	0.02	−0.07	0.09	0.08
14. $LaborIntensity_{t-1}$														0.00	−0.07	−0.04	0.00	0.00	−0.06
15. $Union_{t-1}$															−0.14	0.04	−0.03	0.00	−0.38
16. $Insti_{t-1}$																0.07	−0.03	−0.13	0.28
17. $abInvest_{t-1}$																	0.05	0.06	−0.07
18. *MAscore*																		0.03	0.02
19. $Gscore_{t-1}$																			−0.03
20. *SAB*																			

Table 2
The effect of conservatism on labor investment efficiency.

Variables	(1) Dependent Variable = Abnormal Net Hiring (*abNetHiring*)		(2) Overinvestment in Labor Subample (*abNetHiring* > 0)		(3)Underinvestment in Labor Subsample (*abNetHiring* < 0)	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.099***	6.01	0.129***	5.77	0.100***	4.32
$Cscore_{t-1}$	**−0.039*** **	**−6.33**	**−0.042*** **	**−4.79**	**−0.040*** **	**−4.55**
FRQ_{t-1}	−0.011***	−3.68	−0.004	−0.95	−0.017***	−4.16
MtB_{t-1}	0.003***	3.00	0.006***	3.77	0.001	1.05
$Size_{t-1}$	−0.012***	−12.14	−0.013***	−9.56	−0.012***	−8.93
$Quick_{t-1}$	0.027***	34.74	0.009***	4.90	0.032***	30.44
$Leverage_{t-1}$	0.060***	9.63	0.018*	1.95	0.079***	9.39
$Dividend_{t-1}$	−0.012***	−5.56	−0.017***	−4.97	−0.010***	−3.80
$stdCFO_{t-1}$	0.213***	8.90	0.246***	6.63	0.185***	6.04
$stdSales_{t-1}$	0.010**	2.45	0.015**	2.32	0.007	1.48
$Tangible_{t-1}$	−0.004	−1.27	−0.019***	−3.83	0.004	0.80
$Loss_{t-1}$	0.035***	14.47	0.011***	3.08	0.053***	16.59
$stdNetHire_{t-1}$	0.070***	10.74	0.070***	6.83	0.070***	8.53
$LaborIntensity_{t-1}$	0.016	0.55	−0.146**	−2.41	0.049	1.44
$Union_{t-1}$	−0.026**	−2.25	0.013	0.72	−0.064***	−4.34
$Insti_{t-1}$	−0.023***	−5.08	−0.015**	−2.27	−0.029***	−4.56
$abInvest_{t-1}$	0.072***	7.15	0.015	0.96	0.122***	9.44
Year Fixed Effects	Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes	
Adj. R^2	24.03%		8.63%		36.68%	
N	31,865		14,424		17,441	

This table presents the results of estimating model (5). The results for the full sample, the overinvestment subsample (where the actual net hiring is greater than the expected level), and underinvestment subsample (where the actual net hiring is less than the expected level) are provided in columns (1), (2) and (3), respectively. All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.

The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ *(5)*.

5.3. Robustness analyses

5.3.1. Subsamples of Over-hiring, Under-firing, Under-hiring, and Over-firing

Following Jung et al. (2014), we decompose over- and under-investment in labor into the following four subsamples based on the signs of the abnormal net hiring and the expected level of net hiring:

	Positive *AbNetHire*	Negative *AbNetHire*
Positive Expected *NetHire*	Over-hiring (Over-investment)	Under-hiring (Under-investment)
Negative Expected *NetHire*	Under-firing (Over-investment)	Over-firing (Under-investment)

We then estimate model (5) for each specific subsample and report the results in Table 3. Over-investment in labor could manifest managers' empire-building agendas since self-interested managers engage in over-hiring activities to expand their staff or employees beyond the optimal size to gain more security, status, and perceived professional achievement (Williamson, 1963). Given that conservatism discourages empire-building agendas by constraining inefficient investments, more conservative firms will exhibit lower levels of over-hiring or under-firing labor practice. Alternatively, conservatism can reduce under-hiring and over-firing because it can alleviate financing frictions by reducing information asymmetry and reducing adverse selection problems for potential financing providers. García Lara et al. (2016) predict that conservatism mitigates underinvestment among firms facing financing difficulties and find consistent results. As conservatism facilitates financing for firms prone to under-investing, the likelihood of under-investment in labor (under-hiring and over-firing) would be curtailed. The estimated coefficients on *Cscore* are negative and significant, indicating that the negative association between conservatism and inefficient investments in labor holds in all four scenarios: over-hiring, under-firing, under-hiring, and over-firing.

5.3.2. Two alternative proxies for conservatism

We also use two alternative proxies for conservatism. The first alternative is the accruals-cash flow-based measure of conservatism, *ACscore*, based on Ball and Shivakumar (2005). Similar to the main measure of conservatism, we also apply Khan and Watts's (2009) method to estimate a firm-year measure of conservatism by estimating the following regression model:

Table 3
The effect of conservatism on over- and under-hiring (and firing).

Variables	(1) Overhiring		(2) Underfiring		(3) Underhiring		(4) Overfiring	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.050	1.06	0.107***	3.70	0.146***	5.30	0.103***	2.78
$Cscore_{t-1}$	**−0.024***	**−1.83**	**−0.043*****	**−4.06**	**−0.050*****	**−4.27**	**−0.027****	**−2.15**
FRQ_{t-1}	0.006	0.85	−0.025***	−5.37	−0.008	−1.36	0.005	0.66
MtB_{t-1}	0.003	1.58	0.001	0.59	0.006***	2.66	0.008***	3.22
$Size_{t-1}$	−0.009***	−4.00	−0.013***	−7.61	−0.015***	−8.68	−0.008***	−4.11
$Quick_{t-1}$	0.031***	30.35	0.033***	24.10	0.010***	4.92	0.004	1.22
$Leverage_{t-1}$	0.095***	9.23	0.073***	7.31	0.030***	2.65	−0.008	−0.51
$Dividend_{t-1}$	−0.010*	−1.77	−0.011***	−3.25	−0.017***	−3.76	−0.016***	−3.17
$stdCFO_{t-1}$	0.217***	4.63	0.181***	5.06	0.219***	4.83	0.306***	4.83
$stdSales_{t-1}$	0.009	1.24	0.007	1.25	0.016**	2.00	0.014	1.29
$Tangible_{t-1}$	0.01**	2.17	−0.000	−0.04	−0.025***	−3.84	−0.005	−0.66
$Loss_{t-1}$	0.047***	9.56	0.055***	14.24	0.008	1.58	0.019***	3.38
$stdNetHire_{t-1}$	0.041***	3.60	0.083***	8.10	0.076***	5.95	0.054***	3.22
$LaborIntensity_{t-1}$	0.050	0.94	0.049	1.23	−0.191**	−2.47	−0.064	−0.54
$Union_{t-1}$	−0.086***	−2.99	−0.056***	−3.17	0.036	1.38	−0.031	−1.20
$Insti_{t-1}$	−0.038***	−3.66	−0.027***	−3.59	−0.017*	−1.90	−0.009	−1.07
$abInvest_{t-1}$	0.109***	5.21	0.126***	8.38	0.009	0.47	0.035	1.21
Year Fixed Effects	Yes		Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes		Yes	
Adj. R^2	42.74%		34.55%		8.49%		9.63%	
N	4742		12,699		9,745		4679	

This table reports the results of estimating model (5) on four subsamples (overhiring, underfiring, underhiring and overhiring) of the sample. The four subsamples are defined as Jung et al. (2014). All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.

The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ *(5).*

$$ACC_t = \beta_0 + \beta_1 DC_t + CFO_t(\mu_1 + \mu_2 Size_t + \mu_3 MtB_t + \mu_4 Leverage_t) + DC_t * CFO_t(\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Leverage_t) + (\delta_1 Size_t + \delta_2 MtB_t + \delta_3 Leverage_t + \delta_4 DC_t * Size_t + \delta_5 DC_t * MtB_t + \delta_6 DC_t * Leverage_t) + \varepsilon_t$$

where ACC_t is total accruals in year t deflated by the year $t-1$ market value of equity, CFO_t is the cash flow from operations *(OANCF)* in year t deflated by the year $t-1$ market value of equity (*CSHO*PRCC_F*), and DC_t is a dummy variable that equals one if CFO_t is negative and zero otherwise. Following Khan and Watts (2009), the timeliness of bad news (*ACscore*) can be expressed as follows:

$$ACscore = \beta_3 = \lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Leverage_t$$

The other alternative proxy for conservatism is the three-year accumulation of non-operating accruals (*NOAs*), based on Givoly and Hayn (2000). *NOAs* can be expressed as follows:

$$NOA_s = (Net\ Income + Depreciation) - (\Delta Accounts\ Receivable + \Delta\ Inventories + \Delta Prepaid\ Expenses - \Delta Accounts\ Payable - \Delta Taxes\ Payable)$$

NOAs are deflated by average total assets (*AT*), averaged over a three-year period, and then multiplied by negative one. As presented in Table 4, our primary results hold for both alternative proxies, *ACscore* (*coeff.* = −0.016, *p*-value < 0.01) and *NOAs* (*coeff.* = −0.022, *p*-value < 0.01), corroborating the main results.

5.3.3. Alternative proxies for labor investment efficiency

We also use two alternative proxies for labor investment efficiency. Following Jung et al. (2014), we use the average of a firm's net hiring over the previous three years and the industry-median net hiring as expected net hiring to calculate abnormal net hiring. In the untabulated results using both alternative proxies, the coefficient on *Cscore* continues to be negative and significant, corroborating our primary results.

5.3.4. Controlling for managerial ability and corporate governance

We further control for managerial ability and corporate governance to tease out the effects of managerial ability and corporate governance on conservatism. To proxy for managerial ability, we use the measure *MAscore* developed by Demerjian et al. (2013). To proxy for corporate governance, we use Gompers et al.'s (2003) G-index. As reported in Table 5, our primary result on the negative association between conservatism and inefficient investments in labor still holds after controlling for managerial ability (*coeff.* = −0.038, *p*-value < 0.01) and corporate governance (*coeff.* = −0.029, *p*-value < 0.01), confirming that the monitoring

Table 4
Alternative proxies of conservatism.

Variables	(1) *Cscore = Acsore*		(2) *Cscore = Negative NOA*	
	Coeff.	*T-stat*	*Coeff.*	*T-stat*
Intercept	0.057***	3.68	0.083***	3.74
Cscore$_{-1}$	**−0.016*****	**−2.97**	**−0.022*****	**−2.78**
FRQ_{t-1}	−0.012***	−4.00	−0.006	−1.28
MtB_{t-1}	0.005***	4.69	0.005***	3.30
$Size_{t-1}$	−0.008***	−10.83	−0.007***	−6.94
$Quick_{t-1}$	0.027***	34.81	0.027***	25.79
$Leverage_{t-1}$	0.059***	9.13	0.051***	5.28
$Dividend_{t-1}$	−0.013***	−6.00	−0.013***	−3.75
$stdCFO_{t-1}$	0.209***	8.66	0.195***	5.81
$stdSales_{t-1}$	0.010**	2.50	0.013**	2.16
$Tangible_{t-1}$	−0.004	−1.28	−0.002	−0.53
$Loss_{t-1}$	0.034***	14.05	0.037***	10.14
$stdNetHire_{t-1}$	0.069***	10.50	0.071***	7.16
$LaborIntensity_{t-1}$	0.022	0.73	−0.012	−0.55
$Union_{t-1}$	−0.031***	−2.65	−0.042**	−2.04
$Insti_{t-1}$	−0.019***	−4.15	−0.019***	−2.85
$abInvest_{t-1}$	0.080***	7.85	0.001	0.12
$MAScore_{t-1}$	0.002	0.58	0.091****	6.31
Year Fixed Effects	Yes		Yes	
Industry Fixed Effects	Yes		Yes	
Adj R^2	23.54%		22.62%	
N	31,425		16,434	

This table reports the results of estimating model (5) using two alternative proxies of conservatism, *Acsore* and N*egative NOA*. All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.
The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ (5).

effect of conservatism on labor investment efficiency is above and beyond those of managerial ability or corporate governance.

5.3.5. Controlling for other investments

Prior studies document that a firm's financial reporting quality relates to its investment behavior (Biddle and Hilary, 2006; Biddle et al., 2009). For example, Biddle et al. (2009) suggest that higher financial reporting quality can curb managerial incentives to engage in value-destroying over-investments by disciplining them. They also argue that high financial reporting quality can alleviate the under-investment problem by allowing constrained firms to attract capital by making their positive NPV projects more visible to investors and by reducing adverse selection in stock issuance. Labor is a major production input, and thus labor investment is likely to be positively related to other types of investments (such as capital or R&D expenditures). To the extent that labor investment is a simple manifestation of other types of investments, it might be argued that the results documented in this study are not distinguishable from the results documented previously. To address this concern, we conduct a similar test to that in Jung et al. (2014). The entire sample is divided into two subsamples in which net hiring is positively or negatively associated with the change in total investment. If our results are simply driven by other investments, we will find the negative association between conservatism and abnormal net hiring only in the subsample with net hiring positively associated with a change in total investment (that is, net hiring is moving in the same direction as total investment). The results documented in Table 6 show that our results hold for both subsamples, suggesting that the primary results are not simply driven by other investments, and thus provide supplementary evidence for our primary results.

5.3.6. Examining SAB No. 101 as an exogenous shock of conservatism

The enactment of Staff Accounting Bulletin (SAB) No. 101 in 1999 resulted in a change in the regulatory regime. According to Crawford et al. (2011), accounting conservatism increased during the post-SAB 101 period. Therefore, we use SAB 101 as an exogenous shock to increase accounting conservatism to further test the association between conservatism and labor investment inefficiency. *Cscore* is replaced with an indicator variable *SAB* that equals one after the enactment of SAB 101 and zero otherwise. Consistent with SAB 101 increasing conservatism, the correlation between *Cscore* and *SAB* is positive and significant (*coeff.* = 0.120) in our sample. To capture within-firm variation in labor efficiency around the enactment of SAB 101, we drop the year dummies and keep the firm fixed effects for this analysis. As reported in Table 7, *SAB* is negatively and significantly associated with *AbsAbNetHire* (*coeff.* = −0.008, *p*-value < 0.01), confirming that a positive shock to accounting conservatism causes firms to reduce labor inefficiency.

Table 5
Controlling for managerial ability and corporate governance.

Variables	(1) Controlling for managerial ability		Variables	(2) Controlling for managerial ability and corporate governance	
	Coeff.	*t-stat*		*Coeff.*	*t-stat*
Intercept	0.097***	5.78	*Intercept*	0.100***	3.36
$Cscore_{t-1}$	**−0.038*** **	**−6.14**	$Cscore_{t-1}$	**−0.029*** **	**−3.49**
FRQ_{t-1}	−0.012***	−3.80	FRQ_{t-1}	−0.008**	−2.00
MtB_{t-1}	0.003***	2.94	MtB_{t-1}	0.002	1.28
$Size_{t-1}$	−0.012***	−12.09	$Size_{t-1}$	−0.011***	−8.26
$Quick_{t-1}$	0.027***	34.42	$Quick_{t-1}$	0.026***	20.4
$Leverage_{t-1}$	0.060***	9.33	Lev_{t-1}	0.064***	6.93
$Dividend_{t-1}$	−0.012***	−5.54	$Dividend_{t-1}$	−0.008***	−2.63
$stdCFO_{t-1}$	0.208***	8.64	$stdCFO_{t-1}$	0.212***	5.10
$stdSales_{t-1}$	0.011***	2.61	$stdSales_{t-1}$	0.011	1.64
$Tangible_{t-1}$	−0.004	−1.14	$Tangible_{t-1}$	0.000	0.01
$Loss_{t-1}$	0.036***	14.56	$Loss_{t-1}$	0.032***	8.69
$stdNetHire_{t-1}$	0.069***	10.56	$stdNetHire_{t-1}$	0.072***	7.67
$LaborIntensity_{t-1}$	0.017	0.57	$LaborIntensity_{t-1}$	−0.087**	−2.45
$Union_{t-1}$	−0.026**	−2.23	$Union_{t-1}$	−0.025*	−1.69
$Insti_{t-1}$	−0.023***	−4.92	$Insti_{t-1}$	−0.012*	−1.95
$abInvest_{t-1}$	0.071***	7.00	$abInvest_{t-1}$	0.053***	3.82
MAscore	0.001	0.33	*MAscore*	0.010**	2.17
			Gindex	0.000	0.76
Year Fixed Effects	Yes			Yes	
Industry Fixed Effects	Yes			Yes	
Adj. R^2	24.11%		*Adj.* R^2	25.75%	
N	31,406		*N*	15,617	

This table presents the results of estimating model (5), controlling for managerial ability (*MAscore*) and corporate governance (*Gindex*). All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.
The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} abInvest_{it} + \beta_{17} MAscore_{it} + \beta_{18} Gindex_{it} + \varepsilon_{it}$.

Table 6
Controlling for other investments.

Variables	(1) When *NetHire* is positively related to change in investment		(2) When *NetHire* is negatively related to change in investment	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.105***	4.09	0.090***	2.91
$Cscore_{t-1}$	**−0.040*** **	**−5.38**	**−0.037*** **	**−4.30**
FRQ_{t-1}	−0.008**	−1.99	−0.018***	−3.71
MtB_{t-1}	0.004***	4.18	0.002*	1.82
$Size_{t-1}$	−0.012***	−9.53	−0.011***	−7.83
$Quick_{t-1}$	0.025***	35.73	0.028***	37.47
$Leverage_{t-1}$	0.074***	11.02	0.046***	7.12
$Dividend_{t-1}$	−0.015***	−4.75	−0.009**	−2.48
$stdCFO_{t-1}$	0.208***	7.88	0.222***	7.55
$stdSales_{t-1}$	0.010**z	2.27	0.010*	1.93
$Tangible_{t-1}$	−0.003***	−0.72	−0.007	−1.62
$Loss_{t-1}$	0.031***	10.27	0.041***	12.01
$stdNetHire_{t-1}$	0.069***	9.69	0.071***	8.95
$LaborIntensity_{t-1}$	−0.010	−0.30	0.042	1.36
$Union_{t-1}$	−0.039**	−2.24	−0.017	−0.83
$Insti_{t-1}$	−0.021***	−3.50	−0.027***	−4.18
$abInvest_{t-1}$	0.066***	5.27	0.091***	7.13
Year Fixed Effects	Yes		Yes	
Industry Fixed Effects	Yes		Yes	
Adj. R^2	21.45%		27.63%	
N	18,274		12,484	

This table presents the results of estimating model (5) across the subsamples when *NetHire* is positively and negatively related to change in investment. All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.
The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ *(5)*.

Table 7
Examining SAB No. 101 as an exogenous shock of conservatism.

Variables	*Coeff.*	*t-stat*
SAB	**−0.008*****	**−2.71**
FRQ_{t-1}	−0.012***	−3.71
MtB_{t-1}	0.006***	6.85
$Size_{t-1}$	−0.006***	−4.75
$Quick_{t-1}$	0.028***	35.86
$Leverage_{t-1}$	0.057***	8.56
$Dividend_{t-1}$	−0.001	−0.20
$stdCFO_{t-1}$	0.055**	2.03
$stdSales_{t-1}$	0.015***	3.10
$Tangible_{t-1}$	0.016***	3.68
$Loss_{t-1}$	0.025***	10.11
$stdNetHire_{t-1}$	−0.050***	−7.10
$LaborIntensity_{t-1}$	0.033	0.76
$Union_{t-1}$	−0.011	−0.60
$Insti_{t-1}$	−0.019***	−2.94
$abInvest_{t-1}$	0.023***	4.79
$MAScore_{t-1}$	0.052***	5.08
Year Fixed Effects	Yes	
Industry Fixed Effects	Yes	
Adj. R^2	43.02%	
N	31,865	

This table presents the results of using SAB No. 101 as an exogenous shock to increase accounting conservatism to further test the association between conservatism and labor investment inefficiency. In model (5), we replace *Cscore* with an indicator variable *SAB*, that equals one after the enactment of SAB 101 and zero otherwise, to repeat our analyses. All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.
The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 SAB_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ *(5)*.

5.3.7. Propensity score matching analysis

As a further robustness check, we adopt the propensity-score matching method to more effectively control for the differences in relevant dimensions between the conservative and non-conservative subsamples (Armstrong et al., 2010). Armstrong et al. (2010) argue that the propensity-score matching method should be applied when the hypothesized causal variable is an endogenous choice of managers, boards of directors, or other similar parties. Because financial reporting decisions are less likely to be random, we attempt to control for potential selection bias using the propensity-score matching method. If differences in the outcome variable (investment behavior on the labor market) between conservative firms and non-conservative firms are due to observable reasons other than conservatism, we expect that the coefficient on *Cscore* will not be different from zero in a matched sample. Instead, if conservatism does play a role in determining investment behavior on the labor market, then more conservative firms and their matches should exhibit different investment behaviors on the labor market.

In the first stage, we include all control variables in the following regression model (6) and estimate the model annually:

$$\begin{aligned} CscoreD = {} & \beta_0 + \beta_1 FRQ_{it-1} + \beta_2 MtB_{it-1} + \beta_3 Size_{it-1} + \beta_4 Quick_{it-1} + \beta_5 Lev_{it-1} + \beta_6 Dividend_{it-1} + \beta_7 StdCFO_{it-1} + \beta_8 StdSales_{it-1} \\ & + \beta_9 Tangible_{it-1} + \beta_{10} Loss_{it-1} + \beta_{11} Insti_{it-1} + \beta_{12} StdNetHire_{it-1} + \beta_{13} LaborIntensity_{it-1} + \beta_{14} Union_{it-1} + \beta_{15} AbInvest_{it} \\ & + \beta_{16} MAScore_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

where *Cscore_D* equals one if a firm's *Cscore* is above the industry-year median and zero otherwise. All other variables are defined as in model (5). We obtain the propensity score for each firm-year as the predicted value in model (6). We then match each treatment firm (conservative firm) with a control firm (non-conservative firm) that has the closest score in the same year within a distance of 0.10 (without replacement) from the treatment firm's propensity score. If the propensity score match is successful, then we assume that each conservative firm and its matching control firm are similar on all observable dimensions except for the extent of conservatism.

Table 8, Panel A reports the first-stage results estimating model (6), suggesting that most of the firms' characteristics are significantly related to conservatism. Panel B reports the second stage results comparing the labor investment inefficiency. The coefficient on *Cscore*, β_1, is negative and significant (*coeff.* = −0.016, *p*-value < 0.01), consistent with labor investment inefficiency being negatively related to conservatism. These results provide corroborating evidence for the primary results discussed in Section 5.2.2.

Table 8
Propensity score matching analysis.

Panel A: The first stage

Variables	*Coeff.*	Aggregate *t-stat*
Intercept	16.769***	83.85
FRQ_{t-1}	−1.007***	−5.04
MtB_{t-1}	−1.536***	−7.68
$Size_{t-1}$	−2.588***	−12.94
$Quick_{t-1}$	−0.121	−0.61
$Leverage_{t-1}$	5.884***	29.42
$Dividend_{t-1}$	−0.671***	−3.36
$stdCFO_{t-1}$	1.111***	5.56
$stdSales_{t-1}$	−0.614***	−3.07
$Tangible_{t-1}$	0.580***	2.90
$Loss_{t-1}$	0.654***	3.27
$stdNetHire_{t-1}$	−2.183***	−10.91
$LaborIntensity_{t-1}$	8.869***	44.35
$Union_{t-1}$	−0.580***	−2.90
$Insti_{t-1}$	−2.578***	−12.89
$abInvest_{t-1}$	−5.941***	−29.70
$MAScore_{t-1}$	−0.143***	−0.71
Average R^2	58.56%	

Panel B: The second stage

Variables	*Coeff.*	*t-stat*
Intercept	0.168***	4.59
$Cscore\_1$	**−0.016*** **	**−2.99**
FRQ_{t-1}	−0.005	−0.52
MtB_{t-1}	0.002*	1.68
$Size_{t-1}$	−0.009***	−3.59
$Quick_{t-1}$	0.023***	12.11
$Leverage_{t-1}$	0.015	1.00
$Dividend_{t-1}$	−0.032***	−4.33
$stdCFO_{t-1}$	0.089	1.50
$stdSales_{t-1}$	0.034***	3.42
$Tangible_{t-1}$	−0.012	−1.21
$Loss_{t-1}$	0.023***	3.52
$stdNetHire_{t-1}$	0.032**	2.19
$LaborIntensity_{t-1}$	−0.043	−1.40
$Union_{t-1}$	−0.074	−1.63
$Insti_{t-1}$	−0.028**	−2.15
$abInvest_{t-1}$	0.121***	4.31
$MAScore_{t-1}$	−0.020*	−1.70
Year Fixed Effects	Yes	
Industry Fixed Effects	Yes	
Adj. R^2	16.18%	
N	4,388	

This table presents the results of propensity score matching analysis. In panel A, the first stage ordered logistic regression estimates of the determinants of conservatism. *Cscore_D* equals one if a firm's *Cscore* is above the industry-year median and zero otherwise. Column (1) reports the average coefficient estimate across year-specific estimation from 1986 through 2014. Column (2) reports an aggregate *z*-statistic, which is calculated as the sum of the individual annual *z*-statistics divided by the square root of the number of years over which model (6) is estimated (Armstrong et al., 2010). This aggregated *z*-statistic assumes that each annual estimation is independent of the other estimations. Panel B shows the results of using the propensity-score matching method to examine the association between labor investment inefficiency and conservatism. Coefficients are presented with *t*-statistics based on firm-clustered standard errors. ***, ** and * denote significance at the 1, 5, and 10 percent levels, for one-tailed tests where there are predictions and two-tailed tests otherwise All variables are defined in Appendix A.
The regression model is: $Cscore\_D = \beta_0 + \beta_1 FRQ_{i,t-1} + \beta_2 MtB_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Quick_{i,t-1} + \beta_5 Leverage_{i,t-1} + \beta_6 Dividend_{i,t-1} + \beta_7 stdCFO_{i,t-1} + \beta_8 stdSales_{i,t-1} + \beta_9 Tangible_{i,t-1} + \beta_{10} Loss_{i,t-1} + \beta_{11} Insti_{i,t-1} + \beta_{12} stdNetHire_{i,t-1} + \beta_{13} LaborIntensity_{i,t-1} + \beta_{14} Union_{i,t\ 1} + \beta_{15} AbInvest_{i,t} + \beta_{16} MAScore_{i,t} + \varepsilon_{i,t}$ (6).

Table 9
Abnormal net hiring and future performance.

Variables	(1) Dependent variable = change in *ROA* at $t + 1$		(2) Dependent variable = average change in *ROA* over next 3 years	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.006*	1.80	0.000*	−0.36
AbsAbNetHire	**−0.062*****	**−6.78**	**−0.023*****	**−6.38**
Cscore	−0.059***	−5.35	0.002	0.38
*AbsAbNetHire*sCscore*	0.190***	3.90	0.040**	2.01
DFE	−0.210***	−3.97	−0.183***	−8.76
NegDFE	−0.018***	−4.73	−0.004***	−2.67
*NegDFE*DFE*	−0.164***	−2.65	−0.076***	−3.10
*NegDFE*DFE*DFE*	0.128***	9.94	0.027***	5.77
*PosDFE*DFE*DFE*	−1.178***	−7.54	−0.362***	−5.17
CE	0.008	0.44	0.028	3.63
NegCE	−0.018***	−5.78	−0.004***	−3.18
*NegCE*CE*	−0.256***	−6.66	−0.065***	−4.19
*NegCE*CE*CE*	−0.079***	−6.71	−0.024***	−5.51
*PosCE*CE*CE*	0.059***	8.30	0.014***	4.27
Adj. R^2	13.00%		20.00%	
No. Obs.	29,356		25,134	

This table presents the results of estimating model (7) to examine the effect of abnormal net hiring on future performance. All variables are as defined in Appendix A. *p*-Values are based on two-tailed tests, with standard errors clustered by firm.
The regression model: $\Delta ROA_{iavg(t+1,t+2,t+3)} = \beta_0 + \beta_1 absNetHire_{it} + \beta_2 Cscore_{it} + \beta_3 absNetHire_{it}*Cscore_{it} + (\gamma_1 + \gamma_2 NetDFE_{it} + \gamma_3 NegDFE_{it}*DFE_{it} + \gamma_4 PosDFE_{it}*DFE_{it})*DFE_{it} + (\lambda_1 + \lambda_2 NegCE_{it} + \lambda_3 NegCE_{it}*CE_{it} + \lambda_4 PosCE_{it}*CE_{it})*CE_{it} + \varepsilon_{it}$ (7).

5.4. Additional analyses

5.4.1. Abnormal net hiring and future firm performance

Following Jung et al. (2014), we run the following model, which controls for the expected change in profitability that is unrelated to labor inefficiency as well as conservatism:

$$\Delta ROA_{iavg(t+1,t+2,t+3)} = \beta_0 + \beta_1 AbsNetHire_{it} + \beta_2 Cscore_{it} + \beta_3 AbsNetHire_{it}*Cscore_{it} + (\gamma_1 + \gamma_2 NetDFE_{it} + \gamma_3 NegDFE_{it}*DFE_{it} + \gamma_4 PosDFE_{it}*DFE_{it})*DFE_{it} + (\lambda_1 + \lambda_2 NegCE_{it} + \lambda_3 NegCE_{it}*CE_{it} + \lambda_4 PosCE_{it}*CE_{it})*CE_{it} + \varepsilon_{it} \quad (7)$$

where *DFE* is defined as the difference between *ROA* and expected *ROA*. Expected *ROA* is the fitted value from a cross-sectional regression of *ROA* on the natural logarithm of total assets (AT_{t-1}), the natural logarithm of the market-to-book ratio of equity (MTB_{it-1}), ROA_{it-1}, and industry dummies. *CE* is the change in *ROA* from year $t-1$ to *t*. *PosDFE* (*NegDFE*) is a dummy variable that equals one (zero) for positive (negative) *DFE*. Similarly, *PosCE* (*NegCE*) is a dummy variable that equals one (zero) for positive (negative) *CE*. The dependent variable is either one year ahead of the changes in *ROA* or the average change over the next three years (Chang et al., 2006; Jennings et al., 2012).

As shown in Table 9, column (1) (using the one year ahead change in *ROA*), the coefficient on *AbsAbNetHire* is negative (*coeff.* $= -0.062$, *p*-value < 0.01), indicating that labor inefficiencies reduce future profitability. The coefficient on *AbsAbNetHire*Cscore* is positive (*coeff.* $= 0.190$, *p*-value < 0.01), indicating that conservatism mitigates the negative impact of labor inefficiencies on future profitability. The same results hold for the average changes in *ROA* over the next three years. Overall, these results suggest that suboptimal net hiring is costly in terms of future performance and lend some additional support to using abnormal net hiring as the primary measure of labor investment inefficiency.

5.4.2. High vs. low debt (equity) issuance subsamples

Prior research argues that managers use conservative accounting to reduce the agency costs of debt (Ahmed et al., 2002; Watts, 2003a; Beatty et al., 2008; Nikolaev, 2010) and equity (Ahmed and Duellman, 2007; LaFond and Roychowdhury, 2008; LaFond and Watts, 2008; Ramalingegowda and Yu, 2012) because conditional conservatism acts as external monitoring by providing more downside information and preventing managers from engaging in excessively risky future investments.

Based on this monitoring role of conservatism, we argue that the potential mechanism through which conservatism affects labor investment efficiency may be the ease of external financing. The hiring and firing processes are both costly. The hiring process often involves employee relocation costs, travel expenses for applicants and staff, sign-on bonuses, and recruiter fees, not to mention training costs and regular salaries. In the firing process, firms often pay for accrued time off and severance pay, etc. Firms, especially those that do not have sufficient internal funds, resort to external financing to cover these hiring and firing costs.

Conservatism facilitates external financing by reducing information asymmetry between firms and debtholders or shareholders. To the extent that the contracting benefits of more conservative accounting serve as a mechanism through which labor investment efficiency is improved, we expect that the relation between conditional conservatism and labor investment efficiency is stronger for the subsamples of firms with higher debt or equity issuance.

Table 10
High vs. low debt (equity) issuance subsamples.

Variables	(1) High Debt Issuance		(2) Low Debt Issuance		(3) High Equity Issuance		(4) Low Equity Issuance	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.050**	2.30	0.019	0.67	0.083***	3.02	0.044*	1.81
$Cscore_{t-1}$	−0.058**	−2.56	−0.025	−1.14	−0.060***	−3.03	−0.018	−1.15
FRQ_{t-1}	−0.010*	−1.68	−0.016**	−2.36	−0.010**	−2.01	−0.016***	−3.60
MtB_{t-1}	0.001	1.05	0.002	0.82	0.004***	2.91	0.001	0.42
$Size_{t-1}$	−0.012***	−6.91	−0.006***	−3.32	−0.009***	−5.69	−0.008***	−6.21
$Quick_{t-1}$	0.028***	31.31	0.023***	10.82	0.027***	20.77	0.027***	29.91
$Leverage_{t-1}$	0.065***	4.47	0.058***	3.36	0.063***	6.18	0.041***	4.16
$Dividend_{t-1}$	−0.010**	−2.24	−0.021***	−4.23	−0.016***	−4.17	−0.009***	−2.60
$stdCFO_{t-1}$	0.170***	3.80	0.160***	2.84	0.182***	4.62	0.205***	5.27
$stdSales_{t-1}$	0.016**	2.14	0.029***	2.81	0.010*	1.65	0.017***	2.62
$Tangible_{t-1}$	−0.006	−0.74	0.004	0.46	0.000	0.08	−0.004	−0.91
$Loss_{t-1}$	0.036***	7.40	0.036***	7.23	0.033***	8.90	0.030***	8.20
$stdNetHire_{t-1}$	0.052***	4.06	0.079***	4.87	0.080***	7.86	0.060***	5.76
$LaborIntensity_{t-1}$	−0.024	−1.48	0.082	1.56	−0.014	−0.62	0.075***	2.86
$Union_{t-1}$	−0.012	−1.31	−0.032***	−2.74	−0.029***	−3.72	−0.012*	−1.91
$Insti_{t-1}$	−0.009	−1.33	0.011	1.35	0.000	0.03	0.008	1.46
$abInvest_{t-1}$	0.065***	3.22	0.102***	4.18	0.080***	5.16	0.051***	3.35
Year Fixed Effects	Yes		Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes		Yes	
Adj. R^2	28.02%		24.19%		21.57%		26.69%	
N	7,445		7,446		14,031		14,020	

This table presents the results of estimating model (5) for high vs. low debt or equity issuance subsamples. Debt issuance equals long-term debt issuance minus the reduction in long-term debt plus the change in current debt. Equity issuance equals sales of common and preferred stock minus purchases of common stock. Both measures are deflated by total assets. Details are discussed in Section 5.4.2. Variables are defined in Appendix A. All p-values are based on two-tailed tests.

The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ (5).

We partition the sample into high and low debt (equity) issuance subsamples and run regression model (5) separately on each subsample. Debt issuance equals long-term debt issuance minus the reduction in long-term debt plus the change in current debt. Equity issuance equals sales of common and preferred stock minus purchases of common stock. Both measures are deflated by total assets.

As reported in Table 10, the coefficient on $Cscore_{t-1}$ is negative and significant for the subsamples with high debt (equity) issuance and not significant for the subsamples with low debt/equity issuance. These results suggest that conservatism affects labor investment efficiency through its ability to facilitate external financing.

5.4.3. High vs. low unionization subsamples

Labor unions have reason to demand high financial reporting quality and more transparent financial reports since they rely on financial information in collective bargaining negotiations. However, organized labor creates incentives for managers to increase information asymmetry in order to maintain greater influence over the content of the financial information that unions receive. Thus, to the extent that firms in highly unionized industries are characterized by higher levels of information asymmetry, we can expect that accounting conservatism may play a larger role in mitigating the information asymmetry, thus leading to an incremental reduction in labor investment inefficiency.

In Table 11, we present the results of estimating model (5) separately for the high and low unionization subsamples, based on whether unionization rates for a given industry are above or below the median for that year. For brevity, for each subsample, we tabulate only the results for *Cscore*, along with tests of equivalence across subsamples. In column (1), the coefficient on *Cscore* is negative and significant for all sample firms. The difference in the coefficients between the high vs. low unionization subsamples is not significant (*F*-stat = −1.12, *p*-value = 0.261). When the subsample is divided into firms having positive expected net hiring (in column 2) and negative expected net hiring (in column 3), a negative coefficient on *Cscore* is only found in the subsample with positive expected net hiring (in column 2). Overall, the results indicate that the monitoring benefit of conservatism for labor investment efficiency is equally valuable regardless of the degree of unionization of the workforce, but is concentrated in firms with positive economic fundamentals. The fact that there is no significant difference between the high and low unionization subsamples (or equivalently, the high and low information asymmetry subsamples) may imply that the underlying channel through which conservatism reduces investment inefficiency in labor may be its ability to incentivize managers to act more in line with shareholders' interests, rather than its ability to reduce information asymmetry.

Table 11
The role of unionized labor.

Variables	(1) All firms		(2) Firms with positive expected net hiring		(3) Firms with negative expected net hiring	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*	*Coeff.*	*t-stat*
High unionization subsample						
Cscore	**−0.037****	**−2.53**	**−0.077*****	**−3.81**	0.019	1.00
Control Variables		Yes		Yes		Yes
Year Fixed Effects		Yes		Yes		Yes
Industry Fixed Effects		Yes		Yes		Yes
Adj. R^2		23.82%		22.23%		29.12%
N		18,677		12,799		5,878
Low unionization subsample						
Cscore	**−0.074*****	**−3.35**	**−0.074*****	**−2.67**	−0.056	−1.56
Control Variables		Yes		Yes		Yes
Year Fixed Effects		Yes		Yes		Yes
Industry Fixed Effects		Yes		Yes		Yes
Adj. R^2		24.26%		23.89%		2.77
N		13,188		9,825		3,363
Difference between high vs. *low unionization subsamples: F-stat = −1.12, p-value = 0.261*						

This table presents the results of estimating model (5) for subsamples based on unionization and the sign of expected net hiring. Unionization is measured at the industry level. Variables are defined in Appendix A. All p-values are based on two-tailed tests.
The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ *(5).*

5.4.4. Considering labor adjustment costs

The effectiveness of conservatism in increasing labor investment efficiency may vary with the extent of a firm's reliance on skilled labor. Similar to capital expenditures, labor costs associated with recruiting, training, and firing are significant and variable in nature and thus are subject to adjustment costs (Farmer, 1985; Hamermesh, 1993; Oi, 1962). Because these costs for high-skilled labor are higher than those for low-skilled labor (Ochoa, 2013), we expect that conservatism may play a more prominent role in improving labor investment efficiency for firms that require highly skilled labor.

Following Ochoa (2013), we use Occupational Employment Statistics (OES) data from the Bureau of Labor Statistics and the U.S. Department of Labor's O*NET program classification of occupations according to job skill level to construct an industry-specific reliance on skilled labor. We divide the sample into the high-(above median) skilled labor and the low-(below median) skilled labor subgroups, where industry is defined using the 3-digit NAICS code.

Table 12 shows the results testing how the effectiveness of conservatism in improving investment efficiency varies with the extent of a firm's reliance on skilled labor. While the coefficients on *Cscore* are significantly negative for both subgroups, the absolute magnitude of the coefficient on *Cscore* for the high-skilled labor subgroup (*coeff.* = −0.071) is about three times larger and more statistically significant (*p*-value < 0.01) than that of the low-skilled labor subgroup (*coeff.* = −0.024, *p*-value < 0.1). Also, the difference in the coefficients on *Cscore* between the two subgroups is statistically significant at the 10% level. The results are consistent with the prediction that the benefit of conservatism in improving labor investment efficiency increases as labor adjustment costs become greater. These results strengthen the link between conservatism and labor investment efficiency.

6. Conclusion

Prior literature in accounting posits that conservatism can mitigate investment inefficiency in capital markets. We extend this line of research by examining the effect of conservatism on investment efficiency in the labor market, an important area that has been overlooked. We find that conservatism mitigates investment inefficiency, both over-investment and under-investment, in labor. This negative association between conservatism and investment inefficiency in labor holds in all possible scenarios of inefficient investment, including over-hiring, under-firing, under-hiring, and over-firing in the labor market, and it also holds after controlling for managerial ability, corporate governance, and other investments. Moreover, the results are both statistically and economically significant. Overall, our results contribute to a growing body of evidence suggesting that conservative financial reporting improves firms' investment decisions in general, and in particular, labor investment decisions.

Our study has several limitations. First, while we find that conservatism is associated with improved labor investment efficiency, we note that our study is not designed to identify the underlying mechanism through which conservatism affects labor investment. Second, although we try to address the endogeneity in conservatism using SAB No. 101 as an exogenous shock to increase accounting conservatism, the association between conservatism and labor investment decisions may be driven by some underlying firm characteristics that we do not adequately control for in our empirical specifications. Third, although we use various measures of conditional conservatism and alternative tests to triangulate our results, our inferences ultimately depend on how well the conservatism proxies capture the underlying construct of conservative reporting. Fourth, our results are specific to the United States and may not

Table 12
Considering job adjustment cost.

Variables	(1) Low job adjustment costs		(2) High job adjustment costs	
	Coeff.	*t-stat*	*Coeff.*	*t-stat*
Intercept	0.052***	2.73	0.057***	3.16
$Cscore_{t-1}$	**−0.024***	**−1.72**	**−0.071*****	**−3.26**
FRQ_{t-1}	−0.014***	−3.71	−0.010*	−1.80
MtB_{t-1}	0.007***	3.50	0.002	1.38
$Size_{t-1}$	−0.009***	−7.79	−0.008***	−5.38
$Quick_{t-1}$	0.027***	16.91	0.028***	34.13
$Leverage_{t-1}$	0.048***	5.23	0.063***	5.71
$Dividend_{t-1}$	−0.015***	−4.93	−0.007	−1.56
$stdCFO_{t-1}$	0.230***	6.07	0.178***	4.54
$stdSales_{t-1}$	0.008	1.41	0.016**	2.16
$Tangible_{t-1}$	−0.010**	−1.97	−0.006	−1.31
$Loss_{t-1}$	0.031***	9.16	0.039***	9.62
$stdNetHire_{t-1}$	0.070***	7.29	0.056***	5.20
$LaborIntensity_{t-1}$	−0.003	−0.16	0.432***	3.44
$Union_{t-1}$	−0.044***	−2.93	0.043	1.00
$Insti_{t-1}$	−0.015**	−2.41	−0.025***	−2.86
$abInvest_{t-1}$	0.009	1.63	−0.009	−1.38
MAScore	0.108***	7.04	0.056***	3.50
Year Fixed Effects	Yes		Yes	
Industry Fixed Effects	Yes		Yes	
Adj. R^2	26.57%		20.04%	
N	16,001		15,864	

Difference between firms with low vs. high job adjustment costs: t-stat = −1.77, p < 0.1

This table presents the results of estimating model (5) for low vs. high job adjustment cost subsamples. Job adjustment costs are measured based on the industry-specific index of reliance on skilled labors. Details are discussed in Section 5.4.3. All variables are defined in Appendix A. All *p*-values are based on two-tailed tests.
The regression model: $AbsAbNetHire_t = \beta_0 + \beta_1 Cscore_{it-1} + \beta_2 FRQ_{it-1} + \beta_3 MtB_{it-1} + \beta_4 Size_{it-1} + \beta_5 Quick_{it-1} + \beta_6 Leverage_{it-1} + \beta_7 Dividend_{it-1} + \beta_8 stdCFO_{it-1} + \beta_9 stdSales_{it-1} + \beta_{10} Tangible_{it-1} + \beta_{11} Loss_{it-1} + \beta_{12} Insti_{it-1} + \beta_{13} stdNetHire_{it-1} + \beta_{14} LaborIntensity_{it-1} + \beta_{15} Union_{it-1} + \beta_{16} AbInvest_{it} + \varepsilon_{it}$ (5).

carry over to other countries with different labor markets.

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Appendix A: Variable measurement

Dependent Variables:

NetHire = the percentage change in employees

AbNetHire = the residual from model (1)

AbsAbNetHire = the absolute value of *AbNetHire*

Independent Variables:

Cscore = $\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Leverage_t$, using the coefficients λ_1–λ_4 derived from the following cross-sectional regression model
$NI_t = \beta_0 + \beta_1 D_t + R_t(\mu_1 + \mu_2 Size_t + \mu_3 MtB_t + \mu_4 Leverage_t) + D_t R_t(\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Leverage) + \lambda_1 + (\delta_1 Size_t + \delta_2 MtB_t + \delta_3 Leverage_t + \delta_4 D_t Size_t + \delta 5Dt^* MtB_t + \delta_6 D_t Leverage_t) + DS_t(\gamma_1 + \gamma_2 Size_t + \gamma_3 MtB_t + \gamma_4 Leverage_t) + \Delta S_t/P_{t1}(\gamma_5 + \gamma_6 Size_t + \gamma_7 MtB_t + \gamma_8 Leverage_t) + DS_t{}^*\Delta S_t/P_{t-1}(\gamma_9 + \gamma_{10} Size_t + \gamma_{11} MtB_t + \gamma_{12} Leverage_t) + \varepsilon_t$

Cscore_D = 1 if *Cscore* is above the industry-year median, and 0 otherwise

ACscore = $\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Leverage_t$, using the coefficients λ_1- λ_4 derived from the following cross-sectional model
$ACC_t = \beta_0 + \beta_1 DC_t + CFO_t(\mu_1 + \mu_2 Size_t + \mu_3 MtB_t + \mu_4 Leverage_t) + DC_t{}^* CFO_t(\lambda_1 + \lambda_2 Size_t + \lambda_3 MtB_t + \lambda_4 Leverage_t) + (\delta_1 Size_t + \delta_2 MtB_t + \delta_3 Leverage_t + \delta_4 DC_t{}^* Size_t + \delta_5 DC_t{}^* MtB_t + \delta_6 DC_t{}^* Leverage_t) + \varepsilon_t$

NOA = [(Net Income + Depreciation) − (ΔAccounts Receivable + ΔInventories + ΔPrepaid Expenses − ΔAccounts Payable − ΔTaxes Payable)]/average total assets, multiplied by negative one

SAB = 1 after the enactment of SAB No. 101 and 0 otherwise

Other Variables:

SG	= the percentage change in sales
ROA	= return on assets
Ret	= the annual buy and hold stock returns
Size	= the logarithm of market value of equity at the beginning of the year
Quick	= the ratio of cash and short-term investments plus receivables to current liabilities
Leverage	= the ratio of long-term debt to total assets at the beginning of the year
Lossbin1	= 1 if prior year *ROA* is between -0.005 and 0 and 0 otherwise
Lossbin2	= 1 if prior year *ROA* is between 0 and 0.005 and 0 otherwise
Lossbin3	= 1 if prior year *ROA* is between 0.005 and 0.010 and 0 otherwise
Lossbin4	= 1 if prior year *ROA* is between 0.010 and 0.015 and 0 otherwise
Lossbin5	= 1 if prior year *ROA* is between 0.015 and 0.020 and 0 otherwise
NI	= net income before extraordinary items divided by market value of equity at the beginning of the year
R	= the 12-month compound returns ending 3 months after the end of the year
D	= 1 if *R* is negative and 0 otherwise
S	= sales revenue
DS	= 1 if sales decrease for the prior year to the current year and 0 otherwise
P	= stock price at the ending of the year
MtB_t	= market to book ratio
FRQ	= the aggregate measure of three financial reporting qualities variables (*PerfDA*, *DisWCA*, *DisRev*), summing the percentile ranks of these three variables, as described in Appendix B
Dividend	= dividend payout ratio
stdCFO	= standard deviation of cash flow of operations
stdSales	= standard deviation of sales
Tangible	= the ratio of PP&E to total assets
Loss	= 1 if *ROA* is negative, and 0 otherwise
Insti	= institutional ownership ratio
stdNetHire	= standard deviation of *NetHire*
LaborIntensity	= the number of employees divided by total assets at the end of last year
Union	= industry-level rate of labor unionization
AbInvest	= abnormal other investment, measured based on the investment expectation model as in Biddle et al. (2009)
MAscore	= the managerial ability score as developed by Demerjian et al. (2013)
G	= G-index as in Gompers et al. (2003)
Industry	= the 48 industries defined by Fama and French (1997)
DFE	= the difference between *ROA* and the expected *ROA*, which is the fitted value from a cross-sectional regression of *ROA* on the natural logarithm of total assets (AT_{t-1}), the natural logarithm of the market-to-book ratio of equity (MTB_{it-1}), ROA_{it-1} and industry dummies
PosDFE	= 1 if *DFE* is positive and 0 otherwise
NegDFE	= 1 if *DFE* is negative and 0 otherwise
CE	= the change in *ROA* from year $t-1$ to t
PosCE	= 1 if *CE* is positive and 0 otherwise
NegCE	= 1 if *CE* is negative and 0 otherwise

Appendix B: Measures of the financial reporting quality (FRQ)

FRQ is an aggregate measure of the following three measures of financial reporting quality, summing the percentile ranks of these three variables.

1. Discretionary accruals (*DisAcc*) (Jones, 1991).

DisAcc is estimated cross-sectionally each year using all firm-years in the same two-digit SIC code.

$$TA = \alpha + \frac{\beta_1}{TotalAssets_{it-1}} + \beta_2(\Delta Rev_{it} - \Delta AR_{it}) + \beta_3 PPE_{it} + \varepsilon_{it}$$

where *TA* = total accruals = net income minus cash flow from operations, *TotalAssets* = total assets, Δ*Rev* = change in revenues scaled by lagged total assets, Δ*AR* = change in accounts receivable scaled by lagged total assets, and *PPE* = gross value of PPE scaled by lagged total assets. Residuals from the above model are modified Jones-model discretionary accruals (Jones, 1991).

2. Discretionary working capital accruals (*DisWCA*) (Chen et al., 2011)

Dechow and Dichev (2002) develop a model for expected accruals and interpret the deviation from this expected value as the estimation error in accruals. This measure focuses on the strength of the relation between current accruals and past, present, and future cash flows. We use the Dechow-Dichev model as modified by McNichols (2002) and Francis et al. (2005), adjusting for negative cash flows (Ball and Shivakumar, 2006; Givoly et al., 2010). The following model is estimated for each industry-year with at least 20 observations:

$$WCA_{it} = \alpha_0 + \alpha_1 OCF_{it-1} + \alpha_2 OCF_{it} + \alpha_3 OCF_{it+1} + \alpha_4 \Delta Rev_{it} + \alpha_5 PPE_{it} + \alpha_6 \Delta OCF_{it} + \alpha_7 OCF_{it} * \Delta OCF_{it} + \varepsilon_{it}$$

where *WCA* = working capital accruals = the change in non-cash current assets minus the change in current liabilities other than short-term debt and taxes payable, scaled by lagged total assets; *OCF* = cash flow from operations = the sum of net income, depreciation, and amortization, minus *WCA*, all scaled by lagged total assets (Chen et al., 2011); *ΔRev* = annual change in revenues scaled by lagged total assets; *PPE* = property, plant, and equipment, scaled by lagged total assets; and *ΔOCF* = an indicator variable for negative operating cash flows. The residuals $\varepsilon_{i,t}$ represent the estimation errors in the current accruals that are not associated with operating cash flows and that cannot be explained by the change in revenue and the level of *PPE*. *WCA* is the absolute value of $\varepsilon_{i,t}$.

3. Discretionary Revenue (*DisRev*) (Chen et al., 2011)

We use discretionary revenues based on McNichols and Stubben (2008) and Stubben (2010). We use the following regression for each industry-year with at least 20 observations:

$$\Delta AR_{it} = \alpha_0 + \alpha_1 \Delta Rev_{it} + \varepsilon_{it}$$

where *ΔAR* = the annual change in accounts receivable and *ΔRev* = the annual change in revenues, each scaled by lagged total assets. *DisRev* are the residuals $\varepsilon_{i,t}$.

All these three variables are multiplied by negative one so that greater values represent better quality of financial reporting and information environment.

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