

Article

Is Labor Related to the Duality of Earnings Smoothing?

Shengzhong Huang ¹, Chan Lyu ^{2,*} and Xiaojun Lin ^{3,*}

¹ Business School, Southwest University of Political Science and Law, Chongqing 401120, China; huangshengzhong@hotmail.com

² School of Business, Macau University of Science and Technology, Taipa 999078, Macau, China

³ Faculty of Business and Administration, University of Macau, Taipa 999078, Macau, China

* Correspondence: chlyu@must.edu.mo (C.L.); yb47004@umac.mo (X.L.); Tel.: +853-63582294 (C.L.); +853-66447355 (X.L.)

Received: 4 October 2018; Accepted: 20 November 2018; Published: 24 November 2018



Abstract: Previous accounting studies indicate that union strength is positively related to income smoothing and that management is more likely to smooth income when labor power is strong. Researchers debate about whether income smoothing has either a garbling or an informative role. This paper investigates the cross-country impact of labor power on the extent to which information about future prospects is efficiently communicated through income smoothing. It proposes that strong labor power will garble income smoothing, which means that the efficient communication of private information is constrained in strong labor protection settings. Consistent with our predictions, the results show that the informative role of income smoothing is restricted with strong labor protection after controlling for legal institutions, financial-market development, and economic wealth. This study provides new insights into the role of income smoothing by inspecting the linkage between labor protection and income smoothing.

Keywords: income smoothing; labor protection; earnings informativeness

1. Introduction

In extant accounting literature, many studies report that management uses accounting techniques to smooth earnings. Firms use income smoothing to reduce earnings fluctuations from one period to the next under sound accounting and management principles. Managers' reasons for using income smoothing might vary across countries, however, two key debatable roles for income smoothing exist: opportunism (garbling) and informativeness. The informative role of income smoothing is recognized as managers' intention to communicate information about a company's economic performance through financial reports with smoothed earnings. In contrast, the opportunistic role of income smoothing refers to managers' selfish behaviors, as they seek personal compensation or pursue other self-interests by garbling the reported earnings to mislead stakeholders purposefully. Some researchers argue that income smoothing plays a role in informativeness [1–4], whereas others classify income smoothing as opportunistic [5–8].

Extant research indicates that investors trust earnings more than any other performance measurement. Additionally, Graham, Harvey, and Rajgopal [9] suggested that managers regard earnings as their most important concern; almost 97% of their survey respondents said they preferred smooth earnings paths. Managers' strong preference for income smoothing indicates that it is necessary to understand the underlying factors that affect income smoothing. As the earnings are a key information source for outside investor and income smoothing may improve or reduce the earnings informativeness. It would be interesting to explore the determinant of the role of income smoothing.

The effect on investors is not the only concern when studying the motivation for earnings management. Bowen, DuCharme, and Shores [10] stated that managers try to affect other stakeholders' perceptions by managing earnings, through which firms can enhance their reputations and benefit from better terms of trade during the bargaining process with customers, suppliers, and creditors. In recent years, the effect of labor strength on management behavior has become a hot topic. Studies in management have found that labor is a very important stakeholder [11–15]. Labor costs are a significant expense that cannot be ignored, especially since labor unions can extract above-market rents from their firms with their bargaining power, and managers are motivated to maintain good relationships with labor because companies might face the risk of a huge loss if there is a strike or disrupted production. Additionally, managers are motivated to shelter corporate resources from strong labor power to gain a bargaining advantage during labor-contract negotiations.

Labor might affect several aspects of management's accounting behavior. Managers are motivated to hide information from strong labor to maintain bargaining power. Bova [16] contended that managers are motivated to hide information during collective bargaining. Labor unions are rent-seekers because they can use strikes to threaten firms for wage increases, which extract firm rent [17]. Kleiner and Bouillon [18] found that having more information enables unions to bargain more effectively and extract higher rents during negotiations; thus, information sharing is associated with increased bargaining power. In addition, Hilary [19] suggested that revealing information in a unionized environment weakens management's position during the collective bargaining process; thus, management is more likely to preserve information asymmetry with outsiders when strong organized unions are present.

Matsa [20] studied the relationship between labor unions and financing decisions. He found that firms with stronger labor unions have a strategic incentive to increase leverage to gain bargaining advantage. Klasa, Maxwell, and Ortiz-Molina [21] indicated that firms with stronger labor unions tended to hold smaller cash reserves. Chen, Kacperczyk, and Ortiz-Molina [22] found that labor unions increased firms' systematic risk and, hence, their equity costs, by decreasing firms' operating flexibility. Firms with strong labor unions also increased the cost of debt.

Gomez and Tzioumis [23] confirmed that labor strength affects CEO compensation. Consistent with Gomez and Tzioumis [23], in their study examining the relationship between union and CEO compensation, Banning and Chiles [24] found that unions alter the underlying employment relationship between employer and employee.

It seems that managers try to convey a negative earnings outlook to labor unions; however, there is another concern. When labor unions perceive that firms are performing poorly, they ask for more job security and compensation. Faleye, Mehrotra, and Morck [25] contend that employees' wage contracts are just like risky debt, which consists of a fixed claim on the firm. When corporate performance suffers, or firms face the risk of bankruptcy, employees are concerned about their wages and other benefits, as they would receive the firm's residual claim if the company goes bankrupt. Workers would require compensation in the form of higher wages, additional benefits, and improved working conditions to compensate for unemployment risk, which means high unemployment risk relates to high costs borne by labor unions. Additionally, Jensen and Meckling [26] suggested that an employee's primary concern is to maintain sufficient current and future cash flows in case of wage cuts, which means that a company with a strong union might be constrained to making low-risk investments and adopting a low-growth strategy. Agrawal and Matsa [27] studied the relationship between unemployment risk and corporate-financing decisions and suggested that companies are conservative in their financial decision making, partly as a means of mitigating workers' exposure to unemployment risk.

Chemmanur, Cheng, and Zhang [28] studied the relationship between leverage and labor costs. They found that a firm with higher leverage pays more to labor as compensation for possible labor-related bankruptcy costs, especially when strong unions are present.

Extant studies have shown that firms want to hide information and resources from labor unions to maintain bargaining power during negotiations, because if labor unions perceive that companies

are performing poorly, they might ask for more benefits and compensation. Hamm, Jung, and Lee [29] studied the effect of labor strength on managers' incentives to smooth earnings and predicted that income smoothing can minimize labor union-related costs. They found a positive relationship between income-smoothing activities and labor union strength.

However, whether income smoothing plays an informative or garbling role with strong labor has not been discussed in extant literature. Thus, the present study investigated whether and how strong labor unions influence the efficiency of private information about future earnings delivered through income smoothing. We hypothesized that income smoothing, as a channel that delivers private information about future earnings efficiently, is mitigated in countries with strong labor protection.

Collecting data from 40 countries during the 2000–2008 period, we showed that income smoothing (measured by a negative correlation between changes in total accruals and changes in cash flow from operations) takes an informative role, and this role is mitigated in firms with a strong labor-protection structure, after controlling for a series of control variables. Our further robustness tests demonstrated the high validity of our results.

Our study contributes to extant literature in several ways. First, it addresses the role of labor unions in shaping accounting behavior, providing new insights into the relationship between labor unions and the role of income smoothing. We focused on the role of income smoothing (garbling or informative), instead of the magnitude of income smoothing, because without understanding the role of income smoothing, the magnitude seems useless. Second, our study contributes to extant accounting literature by examining effect of labor union in a cross-country setting. It highlighted that the strength of labor union, which rely on the labor law or related regulation, can exert significant influence on the role of income smoothing. Specifically, stronger labor protection would discount the earnings informativeness through income smoothing. That means, when the investor searching optimal investment opportunities through financial information, they need to adjust the reported 'information' based on the institutional environment.

The rest of this paper is organized as follows: relevant extant literature and hypotheses development are presented in Section 2. Section 3 introduces the research methodology that explains the main model used to test the hypotheses and the measurement of each variable. Section 4 describes the process of data collection. The empirical results are reported in Section 5. Finally, concluding remarks and potential research limitations are expressed in Section 6.

2. Literature Review

Income smoothing entails the firm's management using accounting techniques to level out net-income fluctuations from one period to the next under sound accounting principles. Empirical studies of income smoothing can be traced back to the early 1960s, during which time "Do companies smooth?" was the dominant question that scholars investigated [30]. At an early stage, Beidleman [31] contended that many tests conducted by previous researchers do not firmly support the hypothesis that firms engage in income smoothing. He tested six potential smoothing variables, in both linear and semi-logarithmic models, and suggested that firms adopt certain devices over which they have discretion to normalize reported earnings.

In the 1980s, "Why do firms smooth earnings?" became a key research topic. For example, Moses [32] found that firm-specific factors, which consist of firm size, existence of bonus-compensation plans, and divergence of actual earnings from expectations, provide incentives to smooth income through accounting changes. Additionally, other factors, such as corporate governance [33], institutional factors [34], and investor protection [35], can incentivize income smoothing. From the view of international studies, Lyu, Yuen, and Zhang [36] suggest that the combination of culture background and ownership structure have significant effect on earnings quality. Moreover, Leuz, Nanda, and Wysocki [35] showed that countries with strong investor protection have better accounting quality.

Research has also found that the motivation for income smoothing can vary depending on earnings quality and that income smoothing can be classified as being motivated either by opportunism (garbling) or informativeness.

Earnings are garbled when managers smooth income to meet bonus targets. A study by Healy [5] indicated that managers are motivated to garble earnings to meet bonus targets, while DeFond and Park [7] confirmed that managers smooth earnings out of job-security concerns. However, earnings informativeness can be improved when managers reveal private information about future earnings to signal investors through income smoothing [2–37]. Subramanyam [1] showed that firms use discretionary accruals to smooth income and communicate information about firms' future benefits. Tucker and Zarowin [4] measured income smoothing as a negative correlation between a firm's change in discretionary accruals and its change in pre-managed income. Their results showed that efficient communication of information dominates the garbling motivation of firms in the U.S.A. Leuz, Nanda, and Wysocki [35] showed that levels of earnings management differed among strong and weak investor-protection countries. Strong investor protection constrains managers' ability to seek private benefits at the expense of outside shareholders; thus, managers have less incentive to engage in earnings management for opportunistic reasons. Similarly, Cahan, Liu, and Sun [38] ran tests to determine whether investor protection affected the efficient communication of private information about future prospects through income smoothing. They concluded that managers in weak investor-protection countries are more likely to use income smoothing for opportunistic reasons, while managers in strong investor-protection countries are more likely to use income smoothing to convey private information about future earnings.

In addition to investors, labor unions, the key stakeholders can exert influence on management decisions. Beaudry and Francois [39] proposed that managerial skills play a key role in the adoption of modern technologies. Acemoglu and Newman [40] documented that labor demand and labor market regulations can influence a firm's corporate structure, and higher salary is related to lower supervising. Using the wage premium as wage incentive to management, Biagetti, Leonida, and Scicchitano [41] found that individuals perceive different extents of incentive management. Bloomfield, Brüggemann, Christensen, and Leuz [42] investigated how regulatory harmonization affect cross-border labor migration. Using the sample of accounting profession, they showed that the regulatory can influence the labor flow. In an international study, Aldieri and Vinci [43] observed that green economic investment stimulate job creation. Using a sample of 22 European counties, Prabowo, Hooghiemstra, and van Veen-Dirks [44] showed that State-Owned Enterprise (SOE) have more sticker labor cost than private firms. Beside the determinant, the effect of labor is also an interesting research area for accounting scholars. Zhou, Zhang, Lyu, and Zhang [45] reported that the green value from both management and individual employee can affect the firm's green performance. This empirical result supported that the matching of leadership and staff have significant effect of firm performance. Beck, Francis, and Gunn [46] documented that the audit quality is higher when more talented labor engaged in audit project. Hamm, Jung and Lee [29] proposed a positive relationship between labor union strength and earnings smoothing. Therefore, it would be interesting to investigate whether the labor power can influence the association between income smoothing and earnings informativeness.

Labor is a key stakeholder and an imperative claimant to corporation. Extent studies show that labor union has incentive and channels to extract excess rent from corporation. Rose [47] provided compelling evidence that organized workers demand an above-market wage premium. Bronars and Deere [48] proposed that well-organized workers are capable to capture a larger proportion of company's net reserve. Gomez and Tzioumis [23] claimed that labor unions compete with the CEO for the rent distribution and the amount paid to executives is lower when labor unions hold greater amounts of power. When the union is fighting with the company for rent extraction, its bargaining power decides its ability to extract the firm's surplus [21]. We conclude that the extent of rent extraction relies on organized workers' negotiation power.

When labor unions have an incentive to extract excess rent from the corporation, they have two credible channels to exert their influence: union collective bargaining and union representation on corporate board [49]. Organized workers extract excess rent through collective bargaining during the renewal of contract. For example, a labor union would demand higher salary and more retirement benefit during the contract drafting. Such collective bargaining put pressure on the manager to conceal private information. Additionally, labor unions in some countries are vested with the power to engage in industrial actions and strikes [50]. Those actions and strikes put additional pressure on the manager to conceal more information to obtain a bargaining power during the negotiation. The capability of labor unions to exert influence on corporations relies on their bargaining strength, which in turn is largely dependent on the labor laws in that country. Therefore, we posit that in the countries with strong labor protection laws, the managers in that countries are more likely to conceal information to retain some bargain power. Additionally, the income smoothing is more likely to garble, rather than issue, information.

As mentioned before, labor could affect income smoothing. For example, when labor unions are present, managers are motivated to conceal information [51], increase leverage to gain bargaining advantages [20], hold smaller cash reserves [21], and decrease firms' operating flexibility [22]. In contrast, due to employees' job-security concerns, companies are conservative on financial policies [27] and pay higher wages to their employees when facing high leverage [28]. Hamm, Jung, and Lee [29] tested the relationship between labor unions and income smoothing. They predicted that labor unions influence managers' motivation to engage in income smoothing in two ways: on the one hand, earnings are managed downward to hide corporate resources and maintain a bargaining advantage during negotiations with labor unions. On the other hand, managers are motivated to manage earnings upward to avoid reporting disappointing earnings. Their findings suggest that income smoothing is positively related to the strength of labor unions.

In our study, we seek to determine the motive behind income-smoothing activities; thus, we focus on how labor union strength affects the function of income smoothing. The hypothesis we propose is as followed: The income smoothing in higher labor protection is less informative or more garbling; the income smoothing in lower labor protection is more informative or less garbling.

3. Methodology

3.1. Benchmark Model

In an efficient market, all information available to the public is immediately reflected in stock prices, so that no one can gain from public information. Collins, Kothari, Shanken, and Sloan [52] develop a return-earnings model to test how much information about future earnings is disclosed in stock-price changes based on an assumption of market efficiency. Following Tucker and Zarowin [4], we also adopt the model from Collins, Kothari, Shanken, and Sloan [52] as the benchmark model:

$$R_t = \alpha_1 + \alpha_2 X_{t-1} + \alpha_3 X_t + \alpha_4 X_{t3} + \alpha_5 R_{t3} + \varepsilon_t \quad (1)$$

where R_t refers to the ex-dividend annual stock return for the current year (year t), and X_{t-1} , X_t , and X_{t3} stand for lagged earnings per share (EPS), current EPS, and summation of EPS, respectively, for the next three years. These three EPSs are all basic EPSs before extraordinary items, adjusted for stock splits and stock dividends, and scaled by the current year's beginning stock price. The last variable, R_{t3} , represents the aggregate stock return in the next three years with annual compounding. The coefficients on lagged earnings (α_2) and future returns (α_5) are expected to be negative because lagged earnings modify the market's expectation of current earnings and future returns removes the measurement errors contained in realized future earnings. The coefficients on current earnings (α_3) and future earnings (α_4) are expected to be positive, since current returns incorporate the information about both current and future earnings. Additionally, the contrary signs of the coefficients on lagged earnings (α_2) and current earnings (α_3) are consistent with the phenomenon that mean reversion in

earnings declines (increases) is followed by earnings increases (declines or slower rates of increase). The coefficient on future earnings (α_4) is the critical variable in our study, measuring the extent to which current stock prices reveal information about future earnings. A higher coefficient on future earnings (α_4) indicates more information of future earnings is reflected in current stock price, which means higher earnings informativeness. The model used in this study was based on this benchmark model to investigate our research question.

3.2. Measurement of Income Smoothing

Dechow [53] documented that the negative correlation between changes in total accruals and cash flows from operations results from the temporary fluctuations in cash flows by using accruals. Subramanyam [1] discovered a negative relation between discretionary accruals and pre-discretionary income. These studies have provided evidence to support the existence of income smoothing. Tucker and Zarowin [4] measured income smoothing with the correlation between the change in discretionary accruals and the change in pre-discretionary income. Whereas general concerns have been raised about the Jones model's ability to separate discretionary and nondiscretionary accruals, in our study, we used the negative correlation between changes in total accruals (ΔTA) and changes in cash flow from operations (ΔCFO) to measure income smoothing (IS), which is measured by the negative coefficient of the correlation between changes in total accounting accruals and changes in operating cash flows for each firm, with more negative correlations representing higher levels of income smoothing. In addition, to corroborate our conclusion, we used the ratio of the firm-level standard deviations of operating income and operating cash flow to capture income smoothing [35].

3.3. Measurement of Labor Union Strength

In many countries, a legal system protects employees' interests, and such systems usually include three sets of laws: employment law, collective-relations law, and social security. According to Botero, Djankov, Porta, Lopez-de-Silanes, and Shleifer [50], "employment laws govern the individual employment contract. Collective-relations laws regulate the bargaining, adoption, and enforcement of collective agreements. Social-security laws govern the social response to needs and conditions that make a significant impact on quality of life, such as old age, disability, death, sickness, and unemployment."

Compared with social-security laws and employment laws, collective-relations laws are more directly related to labor union power, as the field of collective-relations law compromises trade unionism, collective bargaining, and labor-management relations, as well as national labor policy and labor law. Therefore, in our study, we used the collective-relations law index to measure labor union strength.

The country-level indicators-collective relations law index ($UNION$) is obtained from extant studies [50]. This is a nation-level index that, assumedly, does not change significantly over time. The $UNION$ strength of the selected countries is shown in Table 1. The highest value of $UNION$ represents the highest level of labor protection, which means the strongest labor strength, and the lowest value represents the lowest level of labor union strength.

3.4. Impact of Labor Unions on the Role of Income Smoothing

Following Tucker and Zarowin [4] and Leuz, Nanda, and Wysocki [35], the return-earnings model is applied in this study to test the impact of labor unions on the efficient communication of private information worldwide. Annual stock return (R_t) is regressed against the income smoothing, labor union strength, and their interaction with future earnings in Equation (2):

$$\begin{aligned}
R_t = & \gamma_0 + \gamma_1 X_{t-1} + \gamma_2 X_t + \gamma_3 X_{t3} + \gamma_4 R_{t3} + \gamma_5 IS + \gamma_6 IS \times X_{t3} + \gamma_7 UNION \\
& + \gamma_8 Union \times X_{t3} + \gamma_9 UNION \times IS \times X_{t3} + \gamma_{10} Growth \\
& + \gamma_{11} Growth \times X_{t3} + \gamma_{12} Leverage + \gamma_{13} Leverage \times X_{t3} \\
& + \gamma_{14} Size + \gamma_{15} Size \times X_{t3} + \gamma_{16} LOSS + \gamma_{17} LOSS \times X_{t3} \\
& + \gamma_{18} RADR + \gamma_{19} RADR \times X_{t3} + \gamma_{20} CR + \gamma_{21} CR \times X_{t3} + \gamma_{22} LAW \\
& + \gamma_{23} LAW \times X_{t3} + \sum \pi_i YEAR + \sum \rho_i IND + \varepsilon_t
\end{aligned} \tag{2}$$

The definitions of R_t , X_{t-1} , X_t , X_{t3} , and R_{t3} are the same as those defined in the benchmark model. IS is the proxy for income smoothing, and $UNION$ is the collective-relations laws index, as discussed in the previous two sections. The rest are control variables that will be introduced in the following section.

To explore the joint effect of labor unions and income smoothing on future earnings informativeness, our present study's principal interest is the coefficient on the interaction of $UNION \times IS \times X_{t3}$ (γ_9). If income smoothing constrains earnings informativeness more in countries with strong labor union strength than in countries with weak labor union strength, then, the coefficient γ_9 is expected to be significantly negative. That means that labor unions increase the garbling role of income smoothing and reduce efficient communication about information on future earnings.

3.5. Control Variables

A set of corporate- and institutional-level control variables influencing the role of income smoothing was included in this study. Growth rate (*Growth*) was measured by changes in revenue scaled by lagged revenue, controlling for a firm's growth opportunities. A firm with a low growth rate is likely to have more incentives to smooth earnings. The leverage ratio (*Leverage*) was obtained by dividing total liabilities by total assets. Firms that need to raise capital probably have more motivation to manage earnings for opportunistic reasons. The natural logarithm of the firm's total assets (*Size*) was included in the models to control firm size. Higher total assets indicate larger firm size. Large firms are monitored continuously by the capital market and the government, which might compel these companies to carry out less income smoothing with garbling effects compared with small firms. Subsequently, the categorical variable for a loss firm (*LOSS*) was noted as one where net income was less than zero; otherwise, it was noted as zero. Loss firms instinctively might prefer more discretionary accruals to generate better accounting numbers in the current year or future years. The interactions between each control variable and future earnings (X_{t3}) are included to ensure that the documented relations between individualism-collectivism and the efficient communication of private information are not driven by the absence of the above variables. In addition, the creditor-rights index (*CR*), (Djankov et al. (2007)) anti-director-rights index (*RADR*) (Djankov et al. (2008)), and law index were included to control international differences in legal environments. The creditor-rights index captures the degree of legal protection enjoyed by creditors during the bankruptcy process in different jurisdictions, while the revised anti-director-rights index indicated the degree of legal protection for shareholders, which ranged from zero to six. The law index was used to identify the legal system used in a country; this equals one if a country has a common-law tradition, and zero otherwise. Year dummies (*YEAR*) and industry dummies (*IND*) were used to control the time series and cross-sectional differences.

In the robustness check, following La Porta et al. [54], the natural logarithm of the gross domestic product (GDP) per capita (*GDP*) was used to control cross-country differences in economic development. All variables are listed and defined in Appendix A.

4. Data Collection and Descriptive Statistics

4.1. Sample Selection

Accounting data were downloaded from the Compustat Global database, country-level indices were taken from extant literature, and financial and economic indicators were taken from the World Bank website, covering 40 countries for the 1987–2016 time period. The sample period for the main models was from 1989 to 2013; the rest of the time period served the purpose of calculating past or future values of certain variables (e.g., X_{t-1} , X_{t3} , and R_{t3}) in the main model.

The sample set used to test the main tests originally consisted of the firm-year observations of 31 countries. The sample period covered the years 1987 to 2016, and the data from 2014–2016 were used for calculating the total of three years of future earnings and the sum of three years of future earnings' stock returns with compounding returns. To mitigate the effects of outliers, the variables X_{t-1} , X_t , X_{t3} , R_{t3} , *Growth*, *Size*, and *Leverage* were winsorized at the first and 99th percentiles of the pooled distribution. Variable *IS* consisted of the correlations that fall within the range from negative one to positive one, meaning that no outliers existed. The rest were dummy variables without extreme observations; thus, no data cleaning was required. After dropping all the missing data from the data set, 42,555 firm-year observations remained for testing our hypothesis.

4.2. Descriptive Statistics

Table 1 reports the scores for labor protection, investor protection, creditor protection, the legal system, and the mean of GDP across the 31 countries in the sample. A higher Union index represents stronger labor protection in a country. Peru, Portugal, and Norway have the strongest labor-protection laws (Union ≥ 0.6488), while the United Kingdom, Canada, and New Zealand have Union scores below 0.25. The summary of legal institutional indices shows that the creditor-rights index (*CR*) ranged from zero to four, indicating weak to strong creditor rights, and the anti-director-rights index (*RADR*) ranged from two to five, illustrating weak to strong shareholder protection. The table shows that the United Kingdom and New Zealand have the strongest creditor rights ($CR = 4$), and that Ireland, India, Spain, Singapore, South Africa, and the United Kingdom have the strongest shareholder rights ($RADR = 5$).

Table 1. Country level statistics.

Country	Labor	RADR	CR	Law	GDP
Australia	0.3720	4	3	1	11.30244
Canada	0.1964	4	1	1	11.55558
India	0.3839	5	2	1	11.40957
Ireland	0.4643	5	1	1	10.49875
Israel	0.3095	4	3	1	10.58184
New Zealand	0.2500	4	4	1	10.52242
Singapore	0.3423	5	3	1	10.33291
South Africa	0.5446	5	3	1	10.88675
United Kingdom	0.1875	5	4	1	11.80144
United States	0.2589	3	1	1	12.61732
Argentina	0.5774	2	1	0	11.07482
Austria	0.3601	2.5	3	0	10.94287
Belgium	0.4226	3	2	0	11.08103
Czech Republic	0.3393	4	3	0	11.00081
Denmark	0.4196	4	3	0	10.89204
Finland	0.3185	3.5	1	0	10.77847
Germany	0.6071	3.5	3	0	12.16609
Hungary	0.6071	2	1	0	10.89835
Indonesia	0.3929	4	2	0	11.07185

Table 1. Cont.

Country	Labor	RADR	CR	Law	GDP
Italy	0.6310	2	2	0	11.71819
Japan	0.6280	4.5	2	0	12.11491
Korea	0.5446	4.5	3	0	11.04806
Mexico	0.5774	3	0	0	11.29506
The Netherlands	0.4643	2.5	3	0	11.26631
Norway	0.6488	3.5	2	0	10.86631
Peru	0.7113	3.5	0	0	10.42046
Portugal	0.6488	2.5	1	0	10.64121
Russia	0.5774	4	1	0	11.83774
Spain	0.5863	5	2	0	11.39751
Sweden	0.5387	3.5	1	0	11.14118
Turkey	0.4732	3	2	0	11.01089

Note: This table reports the labor, shareholder, and creditor protection indices, legal system and the mean of GDP across countries. CR is creditor rights index, measuring the power of creditors in controlling the bankruptcy process; RADR is anti-director-rights index, measuring the protection of shareholders; Law is dummy variable, which equals to one if the country uses common lay system, and zero otherwise. GDP is the natural logarithm of GDP per capita in U.S. dollar.

Table 2 provides descriptive statistics for firm-level independent variables and shows that income smoothing (IS) had a mean of -0.14 and a median of -0.191 , which dovetail with a study by Cahan, Liu, and Sun [38]. The mean and median of future earnings (X_{t3}) were 0.034 and 0.096 , respectively. Variables such as X_{t-1} , X_t , and R_{t3} were close to the results by Cahan, Liu, and Sun [38]. The mean of growth rate ($Growth$) was 21% . We can conclude that companies had a 20% annual increase in sales growth on average. The mean of leverage ratio ($Leverage$) was 48.3% , which shows that the firms had a significant amount of debt. The means of ($LOSS$) and ($Size$) were 0.303 and 5.408 , respectively.

Table 2. Summary statistics.

	N	Mean	sd	Min	p25	p50	p75	Max
$Return_t$	80,392	0.138	0.744	-0.873	-0.286	0.000	0.328	4.000
X_{t-1}	80,392	-0.004	0.154	-0.728	-0.020	0.040	0.070	0.266
X_t	80,392	0.006	0.144	-0.613	-0.024	0.039	0.075	0.376
X_{t3}	80,392	0.034	0.419	-1.667	-0.107	0.096	0.226	1.331
$Return_{t3}$	80,392	0.109	0.704	-0.953	-0.381	-0.005	0.427	2.527
IS	80,392	-0.140	0.483	-1.000	-0.488	-0.191	0.168	1.000
Sales Growth	80,392	0.210	0.650	-0.846	-0.019	0.091	0.253	4.708
Leverage	80,392	0.483	0.260	0.034	0.289	0.477	0.638	1.477
Firm Size	80,392	5.408	2.318	0.709	3.691	5.307	6.997	11.028
Loss	80,392	0.303	0.460	0	0	0	1	1

Note: This table presents summary statistics of the variables of interest. The variables are defined in Appendix A.

The Pearson correlations among the variables in Equation (2) are presented in Table 3. The absolute values of correlation coefficients were all less than 0.5. Since the absolute correlation coefficients were not extremely large, multicollinearity was not likely to be a substantive econometric issue in this study. Additionally, this result suggested a need to control for these characteristics in a regression framework to make a valid conclusion.

Table 3. Correlation Matrix.

Variable	R_{return_t}	X_{t-1}	X_t	X_{t3}	$R_{return_{t3}}$	IS	Sales Growth	Leverage	Firm Size	Loss
R_{return_t}	1									
X_{t-1}	−0.061 ***	1								
X_t	0.205 ***	0.498 ***	1							
X_{t3}	0.098 ***	0.327 ***	0.447 ***	1						
$R_{return_{t3}}$	−0.072 ***	0.021 ***	0.005	0.196 ***	1					
IS	0.001	0.006 *	0.007 *	0.003	−0.005	1				
Sales Growth	0.134 ***	−0.082 ***	0.028 ***	−0.048 ***	−0.047 ***	0.030 ***	1			
Leverage	−0.063 ***	−0.108 ***	−0.128 ***	−0.002	0.021 ***	0.027 ***	−0.065 ***	1		
Firm Size	−0.032 ***	0.280 ***	0.244 ***	0.224 ***	0.010 ***	−0.067 ***	−0.052 ***	0.190 ***	1	
Loss	−0.132 ***	−0.423 ***	−0.694 ***	−0.381 ***	0.002	−0.003	0.022 ***	0.068 ***	−0.320 ***	1

Note: This table presents pairwise Pearson correlations of the variables of interest. The variables are defined in Appendix A. The symbols ***, **, and * denote two-sided significance at the level of 1%, 5%, and 10%, respectively.

5. Empirical Results and Robustness Tests

5.1. Results of Benchmark Model and Main Model

In this section, we examined how labor union power affected the role of income smoothing in price informativeness about future earnings. Table 4 presents the empirical result based on benchmark model (Column 1), benchmark model with income smoothing (Column 2), benchmark model with control variables (Column 3), and main regression model (Column 4). To compare with extant studies related to income smoothing [4–38], the results of the benchmark model are shown in Column 1 and indicate that the coefficients on X_{t-1} and R_{t3} were significant and negative, while those of X_t and X_{t3} were significantly positive. These statistics are consistent with our expectation and the studies of Tucker and Zarowin [4] and Cahan, Liu, and Sun [38]. In particular, the positive X_{t3} at the 1% significance level indicates that the current stock price conveys information related to future earnings, supporting the findings of Collins, Kothari, Shanken, and Sloan [52]. The value of the coefficient R_{t3} , at -0.082 , is quite close to Cahan, Liu, and Sun [38], -0.069 , and Tucker and Zarowin [4], -0.084 . The value of the coefficient X_{t3} , at 0.094 , is also similar to that of Cahan, Liu and Sun [38]. These similarities suggest that the model was valid in detecting earnings informativeness reflected by the relation between future earnings and current returns in this study.

Table 4. Regression results of benchmark model and main model.

Variable	Benchmark Model	Benchmark Model with IS	Benchmark Model with Control Variables	Main Model
X_{t-1}	−0.964 *** (−10.61)	−0.964 *** (−10.59)	−0.815 *** (−9.49)	−0.813 *** (−9.47)
X_t	1.485 *** (23.56)	1.485 *** (23.48)	1.403 *** (17.41)	1.402 *** (17.45)
X_{t3}	0.094 *** (4.19)	0.098 ** (2.55)	−0.071 (−0.34)	−0.194 (−0.45)
$R_{return_{t3}}$	−0.082 *** (−5.99)	−0.082 *** (−5.99)	−0.079 *** (−6.05)	−0.079 *** (−6.02)
IS		0 (0.02)	−0.023 *** (−2.79)	−0.020 ** (−2.41)
$IS \times X_{t3}$		−0.007 (−0.15)	0.003 (0.06)	0.558 ** (2.55)
Union				0.865 *** (2.58)
$Union \times X_{t3}$				0.879 (1.01)
$Union \times IS \times X_{t3}$				−2.108 *** (−2.71)
Sales Growth			0.135 *** (10.61)	0.132 *** (10.48)

Table 4. Cont.

Variable	Benchmark Model	Benchmark Model with IS	Benchmark Model with Control Variables	Main Model
Sales Growth $\times X_{t3}$			0.091 *** (6.00)	0.087 *** (5.58)
Leverage			−0.024 (−0.74)	−0.017 (−0.51)
Leverage $\times X_{t3}$			0.142 ** (2.55)	0.149 *** (2.61)
Firm Size			−0.020 *** (−5.22)	−0.021 *** (−5.41)
Firm Size $\times X_{t3}$			0.037 *** (6.13)	0.037 *** (5.97)
Loss			−0.058 *** (−3.03)	−0.059 *** (−3.09)
Loss $\times X_{t3}$			−0.471 *** (−11.56)	−0.470 *** (−11.69)
RADR			−0.001 (−0.06)	0.024 (0.92)
RADR $\times X_{t3}$			0.160 *** (2.69)	0.143 ** (2.27)
CR			0.01 (0.38)	−0.005 (−0.18)
CR $\times X_{t3}$			−0.130 ** (−2.21)	−0.128 ** (−2.28)
Law			−0.119 ** (−2.02)	0.119 (1.28)
Law $\times X_{t3}$			−0.234 (−1.45)	−0.299* (−1.81)
Intercept	0.274 (2.48)	0.274 (2.50)	0.507 (3.61)	−0.093 (0.34)
Year Fixed Effect	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes
No. of Obs.	80,392	80,392	80,392	80,392
R-Squares	15.9%	15.9%	19.6%	19.6%

Note: This table presents the results of benchmark model, benchmark model with IS, benchmark model with control variables, and main model in Column (1) to (4). The dependent variable is $Return_t$. The variables are defined in Appendix A. The model includes year and industry fixed-effects, and the industry fixed effects is based on the Fama-French (1997) 48 industry classification. t-Statistics are presented in parenthesis below the coefficients and are corrected for heteroskedasticity, and cross-sectional and time-serious correlation using a two-way cluster at the firm and year level. The symbols ***, **, and * denote two-sided significance at the level of 1%, 5%, and 10%, respectively.

Before obtaining the results of the main models, two additional regressions were tested to investigate the role of income smoothing without the influence from labor unions for later comparison with the main models. The first regression was the benchmark model that added independent variable IS ; another regression was a benchmark model that added independent variable IS , firm-level controls, institutional controls, and year- and industry-dummy variables. The results of the first regression are shown in Column 2, and Column 3 presents the results of the second regression. Largely, the empirical results in these two columns show that the significance level and sign of coefficients for the variables X_{t-1} , X_t , X_{t3} , and R_{t3} were consistent with that of the benchmark model.

Column (4) presents the empirical result of the main model and provides evidence on whether labor union power affects the relationship between earnings informativeness and income smoothing. After including the labor union variable, variables from benchmark models and the variable IS remained significant and kept the same sign as before. The interaction term $IS \times X_{t3}$ was positive and significant in the test of the hypothesis. The significant positive sign on the coefficient of $IS \times X_{t3}$ indicated that income smoothing plays an informative role and enhances the informativeness of future earnings conveyed in current stock returns. The empirical result implied that managers tends to communicate more future earnings information through income smoothing, which is consistent with the study of Tucker and Zarowin (2006). The interaction term of $UNION \times IS \times X_{t3}$ is the variable of interest we were concerned with. The significant negative sign of the coefficient on $UNION \times IS \times X_{t3}$

(coefficient = -2.108 , t-value = -2.71) shows that labor unions garble the role of income smoothing by interacting with income smoothing to jointly mitigate the efficient communication of private information about a firm's future prospects. That means that managers tend to use income smoothing to communicate private information about future earnings to outside stakeholders. However, in countries with strong labor union power, managers tend to retain more information. Thus, the results support our hypothesis. In addition, we found that *Growth* was positive and significantly associated with current return, while *Size* and *loss* were negative and significantly associated with current return. The coefficient on the interaction $CR \times X_{t3}$ was negatively significant, which suggests that the relation between X_{t3} and current earnings was more negative when creditor rights were stronger. The coefficient on the interaction $ARDR \times X_{t3}$ was positively significant, which indicates that the association between X_{t3} and current earnings was more positive when anti-director rights protection was stronger. This implies that future earnings are more informative when legal protection for shareholders is strong. However, when protection for labor and creditors is strong, the informativeness of future earnings is weaker.

The adjusted R^2 of the main model was 19.6%. This was higher than the adjusted R^2 in other related studies, e.g., 7.2% in the primary model by Tucker and Zarowin (2006) and 10.99% in the main model by Cahan, Liu, and Sun [38].

5.2. Robustness Tests

To increase the validity of our conclusion, we used four robustness tests to corroborate our findings. The first one is a test of main models with additional control for economic wealth. Second, we re-estimated our main regression with the consideration of global recession. First, we reran the regression excluding the firm-year observations from 2008 to 2009; second, we reran our main regression with a dummy variable, *Crisis*. Additionally, some special industries may have dominated our empirical result. To alleviate this issue, we reran our main regression excluding the firm-year observations from special industries. Finally, to alleviate the concern of measurement error of income smoothing, we used alternative measures of income smoothing to rerun the main regression.

5.2.1. Controlling Economic Wealth

The degree of economic fluctuations might influence the role of income smoothing. Following La Porta et al. [54], we used the natural logarithm of the gross domestic product (GDP) to control cross-country differences in economic development. The additional control of GDP was exchanged into US dollar before the calculation. The Table 5 shows that after the consideration of economic environment across different countries, the coefficient on the interaction of $UNION \times IS \times X_{t3}$ remained negative and significant. The result from this robustness test suggest that the informativeness of current returns on future earnings is negatively associated with the extent of income smoothing in the country with strong labor union power, which is consistent with our expectation.

Table 5. Robustness test with additional control variables.

Variable	Coefficient
X_{t-1}	−0.814 *** (−9.48)
X_t	1.402 *** (17.43)
X_{t3}	0.142 (0.36)
$Return_{t3}$	−0.079*** (−6.03)
IS	−0.014*** (−2.66)
$IS \times X_{t3}$	0.297** (2.55)
Union	1.172*** (3.23)
$Union \times X_{t3}$	−0.472 (−0.76)
$Union \times IS \times X_{t3}$	−1.128 *** (−2.75)
GDP	−0.151 *** (−3.43)
Control Variables	Yes
Year Fixed Effect	Yes
Industry Fixed Effect	Yes
No. of Obs.	80,392
R-Squares	19.70%

Notes: This table presents the result of the robustness test controlling the economic wealth. The dependent variable is $Return_t$. The variables are defined in Appendix A. The model includes year and industry fixed-effects, and the industry fixed effects is based on the Fama-French (1997) 48 industry classification. t-Statistics are presented in parenthesis below the coefficients and are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The symbols ***, **, and * denote two-sided significance at the level of 1%, 5%, and 10%, respectively.

5.2.2. Excluding Observations during Financial Crisis

A financial crisis might alter management's normal behavior. Extant studies suggested that during a financial crisis, investors are more risk-averse and tend to invest in low-risk firms [55,56]; thus, corporate managers are likely to smooth earnings to lower investors' risk perceptions. To remove the possible effect of a financial crisis on income smoothing, we re-estimated our main regression with the consideration of global recession. First, we reran the regression excluding the firm-year observations from 2008 to 2009 (Column 1); second, we reran our main regression with a dummy variable, Crisis (Column 2). Crisis is a dummy variable equals to one if the observation is from year 2008 or 2009, zero otherwise. In the Column 1 of in Table 6, the coefficient on the interaction of UNION*IS*Xt3 is significantly negative. That means that the informativeness of current returns on future earnings is negatively associated with the extent of income smoothing in the country with strong labor union power during the non-financial-crisis period. In column 2 of Table 6, our proposition still holds with the financial crisis interaction. The empirical result in Table 6 lends support to our conclusion.

Table 6. Robustness test excluded financial crisis.

Variable	Coefficient	Coefficient
X_{t-1}	−0.842 *** (−9.15)	−0.843 *** (−9.11)
X_t	1.473 *** (20.78)	1.472 *** (20.78)
X_{t3}	0.146 (0.33)	−0.171 (−0.36)
$Return_{t3}$	−0.080 *** (−5.95)	−0.080 *** (−5.92)
IS	−0.014 ** (−2.44)	−0.019 ** (−2.15)
IS × X_{t3}	0.268 ** (2.24)	0.507 ** (2.26)
Union	1.289 *** (3.33)	0.980 *** (2.75)
Union × X_{t3}	−0.465 (−0.68)	0.766 (0.82)
Union × IS × X_{t3}	−1.023 ** (−2.39)	−1.912 ** (−2.36)
Crisis		−0.172 * (−1.79)
X_{t-1} × Crisis		0.231 (1.24)
X_t × Crisis		−0.608 *** (−3.30)
X_{t3} × Crisis		−0.386 (−0.48)
$Return_{t3}$ × Crisis		0.02 (0.37)
IS × Crisis		−0.006 (−0.27)
IS × X_{t3} × Crisis		0.312 (0.42)
Union × Crisis		−1.285 *** (−3.66)
Union × X_{t3} × Crisis		0.097 (0.04)
Union × IS × X_{t3} × Crisis		−1.312 (−0.52)
Control Variables	Yes	Yes
Year Fixed Effect	Yes	Yes
Industry Fixed Effect	Yes	Yes
No. of Obs.	74,346	80,392
R-Squares	17.80%	19.8%

Note: This table presents the result of the robustness test related to financial crisis. Column (1) is the regression excluding firm observations during the financial crisis in year 2008 and 2009 with a smaller sample size of 74,346. Column (2) is the regression with financial crisis dummy interaction in the full sample of 80,392. The dependent variable is $Return_t$. The variables are defined in Appendix A. The model includes year and industry fixed-effects, and the industry fixed effects is based on the Fama-French (1997) 48 industry classification. t-Statistics are presented in parenthesis below the coefficients and are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The symbols ***, **, and * denote two-sided significance at the level of 1%, 5%, and 10%, respectively.

5.2.3. Excluding Observations in Special Industries

To avoid the results being dominated by utilities and financial industries, the firm-year observations from these two industries were excluded from the data set to rerun our main regression model. In Table 7, the estimated coefficient on the interaction of UNION*IS*Xt3 is significantly negative (coefficient = −0.809, t-value = −2), which indicates that the association between earnings

informativeness and income smoothing was weaker in the countries with strong labor union power. This result is consistent with our hypothesis that an informative role of income smoothing is restricted with strong labor protection.

Table 7. Robustness test excluded special industries.

Variable	Coefficient
X_{t-1}	−0.810 *** (−9.32)
X_t	1.392 *** (15.99)
X_{t3}	0.359 (0.92)
$Return_{t3}$	−0.081 *** (−6.06)
IS	−0.017 *** (−3.29)
$IS \times X_{t3}$	0.203 * (1.7)
Union	0.981 *** (2.78)
$Union \times X_{t3}$	−0.899 (−1.43)
$Union \times IS \times X_{t3}$	−0.809 ** (−2.00)
Control Variables	Yes
Year Fixed Effect	Yes
Industry Fixed Effect	Yes
No. of Obs.	69,603
R-Squares	19.90%

Note: This table presents the result of the robustness test excluding firm observations from utilities and financial industries. The dependent variable is $Return_t$. The variables are defined in Appendix A. The model includes year and industry fixed-effects, and the industry fixed effects are based on the Fama-French (1997) 48 industry classification. t-Statistics are presented in parenthesis below the coefficients and are corrected for heteroskedasticity, and cross-sectional and time-serious correlation using a two-way cluster at the firm and year level. The symbols ***, **, and * denote two-sided significance at the level of 1%, 5%, and 10%, respectively.

5.2.4. Alternative Measure of Income Smoothing

In the study of Leuz, Nanda, and Wysocki [35], both the ration of the firm-level standard deviations of operating income and operating cash flow and the Spearman correlation between the change in accruals and the change in cash flow from operations were used to measure income smoothing. To corroborate our findings, we used this alternative measure to rerun our main regression. The results in Table 8 are qualitatively similar to those in Table 4. The estimated coefficient on the interaction of $UNION \times IS \times X_{t3}$ was also significant and negative, indicating that strong labor power will garble income smoothing.

Table 8. Robustness test using alternative income smoothing measure.

Variable	Benchmark Model	Benchmark Model with IS	Benchmark Model with Control Variables	Main Model
X_{t-1}	−0.964 *** (−10.61)	−0.961 *** (−10.70)	−0.816 *** (−9.47)	−0.814 *** (−9.45)
X_t	1.485 *** (23.56)	1.487 *** (23.44)	1.403 *** (17.44)	1.402 *** (17.47)
X_{t3}	0.094 *** (4.19)	0.129 *** (3.74)	−0.095 (−0.47)	0.422 (1.10)
$Return_{t3}$	−0.082 *** (−5.99)	−0.082 *** (−5.97)	−0.079 *** (−6.05)	−0.079 *** (−6.02)
IS		0.042 ** (2.19)	0.016 (1.13)	−0.016 (−1.10)
$IS \times X_{t3}$		−0.056 (−1.39)	0.038 (1.13)	1.066 * (1.88)
Union				0.898 *** (2.69)
$Union \times X_{t3}$				−2.019 ** (−2.14)
$Union \times IS \times X_{t3}$				−4.267 ** (−1.98)
Sales Growth			0.134 *** (10.63)	0.132 *** (10.50)
$Sales Growth \times X_{t3}$			0.091 *** (6.01)	0.088 *** (5.73)
Leverage			−0.024 (−0.76)	−0.017 (−0.52)
$Leverage \times X_{t3}$			0.143 ** (2.55)	0.150 *** (2.61)
Firm Size			−0.019 *** (−5.41)	−0.020 *** (−5.61)
$Firm Size \times X_{t3}$			0.038 *** (5.89)	0.038 *** (5.72)
Loss			−0.058 *** (−3.02)	−0.059 *** (−3.07)
$Loss \times X_{t3}$			−0.471 *** (−11.50)	−0.471 *** (−11.60)
RADR			−0.001 (−0.03)	0.025 (0.97)
$RADR \times X_{t3}$			0.158 *** (2.69)	0.173 *** (2.76)
CR			0.01 (0.36)	−0.007 (−0.25)
$CR \times X_{t3}$			−0.129 ** (−2.20)	−0.136 ** (−2.40)
Law			−0.117 ** (−1.99)	0.122 (1.31)
$Law \times X_{t3}$			−0.235 (−1.53)	−0.268 (0.00)
Intercept	0.274 ** (2.48)	0.261 ** (2.33)	0.478 *** (3.45)	−0.144 (−0.53)
Year Fixed Effect	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes
No. of Obs.	80,392	80,392	80,392	80,392
R-Squares	15.9%	15.9%	19.6%	19.6%

Note: This table presents the results of the benchmark model, benchmark model with IS, benchmark model with control variables, and the main model in Column (1) to (4). The IS in this table is the firm-level standard deviations of operating income and operating cash flow (both scaled by lagged total assets). The dependent variable is $Return_t$. The variables are defined in Appendix A. The model includes year and industry fixed-effects, and the industry fixed effects is based on the Fama-French (1997) 48 industry classification. t-Statistics are presented in parenthesis below the coefficients and are corrected for heteroskedasticity, and cross-sectional and time-serious correlation using a two-way cluster at the firm and year level. The symbols ***, **, and * denote two-sided significance at the level of 1%, 5%, and 10%, respectively.

6. Conclusions and Limitations

The role of income smoothing tends to be informative if future earnings only interact with it. The informative effect of income smoothing enhances earnings informativeness about future prospects after controlling for legal institutions, financial development, and economic wealth. However, the interactions among the collective-relation-law index, income smoothing, and future earnings show that labor unions can mitigate the role of income smoothing by mitigating the informative effects. The stronger the labor unions are, the more likely managers will garble earnings reports to mislead stakeholders through income smoothing.

Consistent with our prediction, the efficient communication of private information was reduced when labor unions were present. Labor unions' garbling effect can be explained by their position as important stakeholders that can extract above-market rents from their firms with their bargaining power. To protect profits, managers were motivated to shelter firm resources and hide information from strong labor unions to gain a bargaining advantage during contract negotiations. If no labor unions were present, or labor power was weak, labor unions had no opportunities to bargain for more employee benefits. In this situation, there was no significant effect on managers' behavior. When labor power existed, the influence of labor unions became a concern: the stronger the labor union was, the more likely managers were to smooth income with a garbling motivation.

The validity of results from the main models was checked through three robustness tests. After removing the dominant effects from countries such as the U.S.A. and Japan, the new results were still robust compared to earlier results, which still hold when financial-market development and economic wealth were added to the main model as new controls. After excluding data from global-recession years 2008 and 2009, the results from the main model were consistent with our prediction.

Our study had its own caveats just like any other research paper. First, many countries were omitted from our final sample because of the country-level index measuring the labor power was unavailable. Second, as our measure of labor power was a country-level index, we could not reveal the findings that whether a unique firm's labor power can influence its own earnings informativeness. Third, although we used two of the most common measures of income smoothing, we cannot rule out measurement errors in our empirical result.

Our paper indicates that labor, the key stakeholder, not only affect the firm's daily operation, but also influence the informativeness of reported financial income through releasing pressure on managers. The effect of labor power can be applied to other types of accounting literature, and thus, represents a promising area for future studies.

Author Contributions: S.H. and X.L. conceived this topic, designed the empirical methodology and wrote the paper based on the empirical result. S.H., C.L. and X.L. collected and analyzed the data.

Funding: This work was supported by the Project of Southwest University of Political Science & Law of China (No.2017XZZXYB-19).

Acknowledgments: We appreciate helpful feedback from Winnie Cheng (editor) and valuable comment from reviewers. We also acknowledge Desmond Yuen from University of Macau for his knowledge and assistance in this study.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A Definition of Variables

Variable	Description
R_t	Annual stock return for year t.
X_{t-1}	Earnings per share (EPS) for Year $t-1$, deflated by stock price in Year t.
X_t	Earnings per share (EPS) for Year t, deflated by stock price in Year t.
X_{t3}	Earnings per share (EPS) for three future years (Year+1, Year+2, Year+3), deflated by stock price in Year t.
Rt3	Aggregate stock return for three future years (Year+1, Year+2, Year+3) with annual compounding.
IS	Income smoothing, which is the negative correlation between changes of total accruals and cash flow from operation.

Variable	Description
Growth	Growth rate of annual sales measured by the changes of revenue divided by lagged revenue.
Leverage	Leverage ratio, measured by total liabilities divided by total assets.
Size	Natural logarithm of market value.
LOSS	Loss is a category variable, 1 if net income < 0, and 0 otherwise.
YEAR	Year dummy for the year 2000–2008.
IND	Industry dummy for the industries based on the two-digit standard industrial classification (SIC) code.
UNION	Measurement of the statutory protection of unions and workers during collective disputes. A high score indicates stronger labor protection.
CR	Creditor rights index measures the power of creditors in controlling the bankruptcy process.
RADR	Anti-director-rights index, measure the protection of shareholders
LAW	Dummy variable, 1 if the country uses a common law system, and 0 otherwise.
GDP	Natural logarithm GDP per capita 2003(US\$).

References

- Subramanyam, K. The pricing of discretionary accruals. *J. Account. Econ.* **1996**, *22*, 249–281. [[CrossRef](#)]
- Sankar, M.R.; Subramanyam, K. Reporting discretion and private information communication through earnings. *J. Account. Res.* **2001**, *39*, 365–386. [[CrossRef](#)]
- Kirschenheiter, M.; Melumad, N.D. Can “Big Bath” and Earnings Smoothing Co-exist as Equilibrium Financial Reporting Strategies? *J. Account. Res.* **2002**, *40*, 761–796. [[CrossRef](#)]
- Tucker, J.W.; Zarowin, P.A. Does income smoothing improve earnings informativeness? *Account. Rev.* **2006**, *81*, 251–270. [[CrossRef](#)]
- Healy, P.M. The effect of bonus schemes on accounting decisions. *J. Account. Econ.* **1985**, *7*, 85–107. [[CrossRef](#)]
- Fudenberg, D.; Tirole, J. A theory of income and dividend smoothing based on incumbency rents. *J. Political Econ.* **1995**, *103*, 75–93. [[CrossRef](#)]
- DeFond, M.L.; Park, C.W. Smoothing income in anticipation of future earnings. *J. Account. Econ.* **1997**, *23*, 115–139. [[CrossRef](#)]
- Arya, A.; Glover, J.; Sunder, S. Earnings management and the revelation principle. *Rev. Account. Stud.* **1998**, *3*, 7–34. [[CrossRef](#)]
- Graham, J.R.; Harvey, C.R.; Rajgopal, S. The economic implications of corporate financial reporting. *J. Account. Econ.* **2005**, *40*, 3–73. [[CrossRef](#)]
- Bowen, R.M.; DuCharme, L.; Shores, D. Stakeholders’ implicit claims and accounting method choice. *J. Account. Econ.* **1995**, *20*, 255–295. [[CrossRef](#)]
- Calvo, G.A.; Wellisz, S. Hierarchy, ability, and income distribution. *J. Political Econ.* **1979**, *87*, 991–1010. [[CrossRef](#)]
- Rosen, S. Authority, control, and the distribution of earnings. *Bell J. Econ.* **1982**, *13*, 311–323. [[CrossRef](#)]
- Waldman, M. Job assignments, signalling, and efficiency. *RAND J. Econ.* **1984**, *15*, 255–267. [[CrossRef](#)]
- Costa, J.E.R.I. Managerial task assignment and promotions. *Econ. J. Econ. Soc.* **1988**, *56*, 449–466. [[CrossRef](#)]
- Bernhardt, D. Strategic promotion and compensation. *Rev. Econ. Stud.* **1995**, *62*, 315–339. [[CrossRef](#)]
- Bova, F. Labor unions and management’s incentive to signal a negative outlook. *Contemp. Account. Res.* **2013**, *30*, 14–41. [[CrossRef](#)]
- Grout, P.A. Investment and wages in the absence of binding contracts: A Nash bargaining approach. *Econ. J. Econ. Soc.* **1984**, *52*, 449–460. [[CrossRef](#)]
- Kleiner, M.M.; Bouillon, M.L. Providing business information to production workers: Correlates of compensation and profitability. *ILR Rev.* **1988**, *41*, 605–617. [[CrossRef](#)]
- Hilary, G. Organized labor and information asymmetry in the financial markets. *Rev. Account. Stud.* **2006**, *11*, 525–548. [[CrossRef](#)]
- Matsa, D.A. Capital structure as a strategic variable: Evidence from collective bargaining. *J. Financ.* **2010**, *65*, 1197–1232. [[CrossRef](#)]
- Klasa, S.; Maxwell, W.F.; Ortiz-Molina, H. The strategic use of corporate cash holdings in collective bargaining with labor unions. *J. Financ. Econ.* **2009**, *92*, 421–442. [[CrossRef](#)]
- Chen, H.J.; Kacperczyk, M.; Ortiz-Molina, H. Labor unions, operating flexibility, and the cost of equity. *J. Financ. Quant. Anal.* **2011**, *46*, 25–58. [[CrossRef](#)]

23. Gomez, R.; Tzioumis, K. *What Do Unions Do to Executive Compensation?* Centre for Economic Performance: London, UK, 2006.
24. Banning, K.; Chiles, T. Trade-offs in the labor union-CEO compensation relationship. *J. Labor Res.* **2007**, *28*, 347–357. [[CrossRef](#)]
25. Faleye, O.; Mehrotra, V.; Morck, R. When labor has a voice in corporate governance. *J. Financ. Quant. Anal.* **2006**, *41*, 489–510. [[CrossRef](#)]
26. Jensen, M.C.; Meckling, W.H. Rights and production functions: An application to labor-managed firms and codetermination. *J. Bus.* **1979**, *52*, 469–506. [[CrossRef](#)]
27. Agrawal, A.K.; Matsa, D.A. Labor unemployment risk and corporate financing decisions. *J. Financ. Econ.* **2013**, *108*, 449–470. [[CrossRef](#)]
28. Chemmanur, T.J.; Cheng, Y.; Zhang, T. Human capital, capital structure, and employee pay: An empirical analysis. *J. Financ. Econ.* **2013**, *110*, 478–502. [[CrossRef](#)]
29. Hamm, S.J.; Jung, B.; Lee, W.J. Labor unions and income smoothing. *Contemp. Account. Res.* **2018**, *35*, 1201–1228. [[CrossRef](#)]
30. Buckmaster, D. *Development of the Income Smoothing Literature, 1893–1998: A Focus on the United States*; Elsevier: Amsterdam, The Netherlands, 2001; Volume 4.
31. Beidleman, C.R. Income smoothing: The role of management. *Account. Rev.* **1973**, *48*, 653–667.
32. Moses, O.D. Income smoothing and incentives: Empirical tests using accounting changes. *Account. Rev.* **1987**, *62*, 358–377.
33. Klein, A. Audit committee, board of director characteristics, and earnings management. *J. Account. Econ.* **2002**, *33*, 375–400. [[CrossRef](#)]
34. Burgstahler, D.C.; Hail, L.; Leuz, C. The importance of reporting incentives: Earnings management in European private and public firms. *Account. Rev.* **2006**, *81*, 983–1016. [[CrossRef](#)]
35. Leuz, C.; Nanda, D.; Wysocki, P.D. Earnings management and investor protection: An international comparison. *J. Financ. Econ.* **2003**, *69*, 505–527. [[CrossRef](#)]
36. Lyu, C.; Yuen, D.C.Y.; Zhang, X. Individualist-collectivist culture, ownership concentration and earnings quality. *Asia-Pac. J. Account. Econ.* **2017**, *24*, 23–42. [[CrossRef](#)]
37. Ronen, J.; Sadan, S. *Smoothing Income Numbers: Objectives, Means and Implications*; Adison-Wesley: Reading, MA, USA, 1981.
38. Cahan, S.F.; Liu, G.; Sun, J. Investor protection, income smoothing, and earnings informativeness. *J. Int. Account. Res.* **2008**, *7*, 1–24. [[CrossRef](#)]
39. Beaudry, P.; Francois, P. Managerial skills acquisition and the theory of economic development. *Rev. Econ. Stud.* **2010**, *77*, 90–126. [[CrossRef](#)]
40. Acemoglu, D.; Newman, A.F. The labor market and corporate structure. *Eur. Econ. Rev.* **2002**, *46*, 1733–1756. [[CrossRef](#)]
41. Biagetti, M.; Leonida, L.; Scicchitano, S. *The Wage Incentive to Management: A Comparison Across European Economies*; University of London: London, UK, 2012.
42. Bloomfield, M.J.; Brüggemann, U.; Christensen, H.B.; Leuz, C. The Effect of Regulatory Harmonization on Cross-Border Labor Migration: Evidence from the Accounting Profession. *J. Account. Res.* **2017**, *55*, 35–78. [[CrossRef](#)]
43. Aldieri, L.; Vinci, C. Green Economy and Sustainable Development: The Economic Impact of Innovation on Employment. *Sustainability* **2018**, *10*, 3541. [[CrossRef](#)]
44. Prabowo, R.; Hooghiemstra, R.; Van Veen-Dirks, P. State Ownership, Socio-political Factors, and Labor Cost Stickiness. *Eur. Account. Rev.* **2018**, *27*, 771–796. [[CrossRef](#)]
45. Zhou, S.; Zhang, D.; Lyu, C.; Zhang, H. Does Seeing “Mind Acts Upon Mind” Affect Green Psychological Climate and Green Product Development Performance? The Role of Matching Between Green Transformational Leadership and Individual Green Values. *Sustainability* **2018**, *10*, 3206. [[CrossRef](#)]
46. Beck, M.J.; Francis, J.R.; Gunn, J.L. Public Company Audits and City-Specific Labor Characteristics. *Contemp. Account. Res.* **2018**, *35*, 394–433. [[CrossRef](#)]
47. Rose, N.L. Labor rent sharing and regulation: Evidence from the trucking industry. *J. Political Econ.* **1987**, *95*, 1146–1178. [[CrossRef](#)]
48. Bronars, S.G.; Deere, D.R. The threat of unionization, the use of debt, and the preservation of shareholder wealth. *Q. J. Econ.* **1991**, *106*, 231–254. [[CrossRef](#)]

49. Appelbaum, E.; Hunter, L.W. Union Participation in Strategic Decisions of Corporations. In *Emerging Labor Market Institutions for the Twenty-First Century*; University of Chicago Press: Chicago, IL, USA, 2004; pp. 265–292.
50. Botero, J.C.; Djankov, S.; Porta, R.L.; Lopez-de-Silanes, F.; Shleifer, A. The regulation of labor. *Q. J. Econ.* **2004**, *119*, 1339–1382. [[CrossRef](#)]
51. Chung, R.; Lee, B.B.-H.; Lee, W.-J.; Sohn, B.C. Do managers withhold good news from labor unions? *Manag. Sci.* **2015**, *62*, 46–68. [[CrossRef](#)]
52. Collins, D.W.; Kothari, S.P.; Shanken, J.; Sloan, R.G. Lack of timeliness and noise as explanations for the low contemporaneous return-earnings association. *J. Account. Econ.* **1994**, *18*, 289–324. [[CrossRef](#)]
53. Dechow, P.M. Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *J. Account. Econ.* **1994**, *18*, 3–42. [[CrossRef](#)]
54. La Porta, R.; Lopez-de-Silanes, F.; Shleifer, A.; Vishny, R.W. Agency problems and dividend policies around the world. *J. Financ.* **2000**, *55*, 1–33. [[CrossRef](#)]
55. Greenspan, A. Risk and uncertainty in monetary policy. *Am. Econ. Rev.* **2004**, *94*, 33–40. [[CrossRef](#)]
56. Caballero, R.J.; Krishnamurthy, A. Collective risk management in a flight to quality episode. *J. Financ.* **2008**, *63*, 2195–2230. [[CrossRef](#)]



© 2018 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).