Conservatism, Earnings Management and R&D Capitalization

Han Li[1]

[1] SILC Business School, Shanghai University, Shanghai, China

Correspondence: Han Li, SILC Business School, Shanghai University, 20 Chengzhong Road, JiaDing District, Shanghai 201800, China. Tel: 86-21-6998-0028 ext.53101.

Abstract

This paper sheds light on the relationship between accounting conservatism and earnings management. It finds that accounting conservatism is negatively associated with real earnings management. Furthermore, it also tests that accounting conservatism has an effect that it can restrict on the innovation inputs which is measured by the extent of capitalized R&D. This effect of negative relationship between accounting conservatism and earnings management would increase under the situation that the firms have higher level of financial leverage.

Keywords: accounting conservatism, earnings management, R&D, innovation, capitalization

1. Introduction

Agency problem originates from the separated purposes between the managements as the agent and the shareholders as the principle. The existence of managers' myopic behavior erodes the values of the firms. Prior researches have more emphasized on the accrual earnings management. With the strict accounting regulations, it is found that firms are more willing to manipulate earnings by real activities. How the firms influence the financial reports with real earnings management and what are the exact methods of these real earnings management are the hot debates in accounting research.

This paper sheds light on the relationship between accounting conservatism and real earnings management. The accounting conservatism is measured by the methods of Basu (1997), Khan and Watts (2009). The conditional conservatism proxy is defined as *CONSER_Score*; Furthermore, this paper also applies for another conservatism proxy which is named as *CONSER_NOA* that follows the methods of Givoly et al., (2000). *CONSER_NOA* is to measure the unconditional accounting conservatism. The dependent variable *REM_PROXY* represents the extent of the firms' real earnings management (Cohen et al., 2008; Roychowdhury 2006). The research results show that accounting conservatism is negatively related with real earnings management. These results are robust when the accounting conservatism is measured by two different ways: conditional conservatism proxy *CONSER_Score* and unconditional conservatism proxy *CONSER_NOA*. Moreover, when the firms have higher level of financial leverage, the negative relationship between accounting conservatism and real earnings management is even stronger. This paper also testifies that accounting conservatism can limit the innovation inputs that are measured by capitalized R&D expenditure. There is a significant negative relationship between accounting conservatism and capitalized R&D expenditure.

This research contributes to the accounting literature regards to the real earnings management and enterprises innovation. There are many researches about the factors driving to earnings management. It is few researches about the relationship between accounting conservatism and real earnings management. Furthermore, prior research in real earning management always involves in general discretionary expenditure in total, very few papers emphasize on the specific discretionary expenditure, such as, research and development expenditure. This paper finds that accounting conservatism has effects on limiting the occurrence of real earnings management, while, it also has impacts on the innovation inputs. The paper finds the evidence that accounting conservatism induce the managers to expand less in research and development costs.

The motivation for this research is to improve the earnings quality and avoid the managerial myopic behavior that erodes the interests of shareholders. The research is to find any method that will reduce the real earnings management. Furthermore, this research also suggests that too strict accounting conservatism might have a negative effect on innovation inputs.

The remainder of this paper is as follows: Part 2 describes the literature about accounting conservatism and real earning management respectively, then develop the hypothesis; Part 3 shows the sources of selected firms and accounting data, the definition about the related variables; Part 4 presents the descriptive analysis and regression results; Part 5 makes a conclusion; the last part is the reference.

2. Literature Review and Hypothesis Development

2.1 Prior Research on Accounting Conservatism

Within the prior researches, the accounting conservatism is simply explained as the traditional saying "anticipate no profit but anticipate all losses". It means in the accounting treatments, gains should be more verifiable than losses (Bliss, 1924). Accounting conservatism has different level verification threshold for gains against losses. The accounting treatments of earnings in asymmetric timeliness require higher level of verification to recognize good news as gains than bad news as losses (Basu, 1997). Accounting conservatism is "to exchange an increase in the false negative (type II) error for an equal amount of decrease in the false positive (type I) error" (Gao, 2013).

Prior researches on accounting conservatism focus on its association with debt, contracts, governance and management earnings forecasts. First, debt holders take care about the safety of the interests and the principle of the debts. The debtors should have enough net assets to pay off their debts. However, the value of net assets is uncertain in future. The lenders have strong motivations to verify the current value of net assets in a lower bound. During the life time of loans, the lenders monitor and even restrict the debtors' managerial activities to avoid the decrease of value of net assets. The debt covenants have the effects on limiting the reduction of net assets and applying for accounting conservatism in debtor's firms (Watts, 2003ab). It is noted that management has asymmetric incentives to be more forthcoming with good news against bad news. But the lenders are more worried about potential bad performance of the debtors. The conservatism principle satisfies for the lenders' demand to filter the firms' timely information (Guay, 2008). Second, the earnings-based compensation contracts also require the conservatism principle to verify whether any bias estimates of future earnings exist or not. Conservatism bias is a possible understatement of managerial performance. Due to higher information asymmetric issue between shareholders and managers, management has incentives to manipulate the earnings for achieving their performance targets for their own purposes (Glover and Lin, 2018). Ball and Shivakumar (2005) advocates that conservatism principle leads to a downward bias on earnings that partly offset managerial manipulation for an upwards adjustment on earnings. Third, conservatism principle accelerates the recognition of bad news in timeliness and induces the shareholders to pay close attention on any project that has negative net present value. Conservatism principle plays a governance role to benefit for the shareholders' interests (Watts, 2003a). Forth, conservatism reduces the information asymmetric by speeding up the recognition of bad news and further decrease the future uncertainty of losses. Li (2008) believes that the conservatism is negatively related with absolute analyst forecast error. Conservatism can benefit for more accurate analyst forecast. Also, it is argued that conservatism has a significant negative relation with management forecast frequency (Hui et al., 2009).

2.2 Research on Real Earnings Management

There is a long-time history that researches focus on accrual-based earnings management until the accounting standards and regulation policies changed. Prior researches have more contributions on the managerial motivation to manipulate the earnings and to reduce the potential downwards earnings surprises (Lopez and Rees,2001; Matsumoto, 2002). In USA, the Sarbanes-Oxley Act (SOX) enacted in 2002 and Similar, in China, the accounting standards have changed a lot for approaching to international accounting standards in 2006. The tightening accounting standards have the economic effects on earnings management (Ewert and Wagenhofer, 2005). It is found that the occurrence of accrual-based earnings management is significantly decreased after the enact of SOX in USA. While, the real activities-based earnings management increase a lot (Cohen, et. at., 2008). This can be explained as the legal and financial costs increasing for the accrual-based earnings management when the accounting standards and internal control system are stricter than before. The firms switch to manage earnings by real activities, such as accelerating of sales, discretionary costs and increasing the ending inventory (Roychowdhury, 2006). There are many evidences for real earnings management. Ahearne et al. (2016) believe that when the firm's sales executives under earnings pressure, they perform real earnings management to beat the targets. The management's pay-for-performance incentives are associated with real earnings management (Eldenbur, et. al.2011). Moreover, it is observed that real earnings management in the firms has intraindustry information transfers effects that means the firms not only manipulate their own financial reports but also influence their rival firms' earnings reports (Einhorn, et al., 2017).

2.3 Hypotheses Development

Cheng et al. (2016) find the relationship between internal governance and the level of real earnings management is significant. In that research, the top executives' residual years to retirement and their relative compensation represent the executives' horizon incentives and their influence respectively. The extent of the horizon incentives and influence of executives in firms is measured as the level of internal governance. Cheng et al. (2016) believe that real earnings management would decrease when the effectiveness of internal governance is strong. Not only firm's governance matters for the real earning management, but also frequent financial reporting also works for restricting the real earnings management. Kraft et al. (2018) find that higher frequency of financial reporting on investment decisions can reduce the firms' information asymmetric and decrease the managerial myopic behavior and real earnings management. Ewert et. al. (2005) advocated that earnings quality is associated with accounting standards. In sum, the internal and external governance and accounting policy can benefit for reducing the information asymmetric. Accounting conservatism is one of fundamental and important accounting principle. The different accounting treatments of timeliness earnings based on accounting conservatism can disclose any accounting information of future loss on time. The application of accounting conservatism obviously contributes to build up more transparent system in firms, then to reduce the real activities-based earnings management. The hypothesis is as follows:

Hypothesis 1: Accounting conservatism is negatively related with real earnings management.

Anecdotal evidence shows that firms' management engage in a variety of real activities' manipulation, such as increasing sales by large percentage of discounts, producing more excess inventory, etc. Research and development expenditures (R&D) is the major forms of discretionary expenditure in real earnings management. The purposes of the managerial opportunistic reduction of R&D discretionary expenditure include (1) avoid EPS dilution by repurchasing stock in markets that financing internally by cutting R&D expenditure (Bens et al.2002,2003); or (2) to beat short-term earnings targets by reducing R&D expenditure (Dechow and Sloan,1991). Accounting conservatism can restrict these opportunistic earnings management. However, the nature of research and development expenditure is quite different with other discretionary expenditure, for instance, periodic expenses. R&D expenditure accompanies with more uncertainty in future. It is very possible that the R&D projects will have higher risk and then lower net present value. According to the principle of accounting conservatism in USA, the R&D expenditure should be treated as current period expenses rather than capitalized as intangible assets. Since the enacts of new accounting standards in 2006, China's accounting standards regards to R&D expenditure is similar as the IAS (international Accounting Standards). There are 5 conditions that should be met if R&D expenditure is capitalized. The stricter of accounting principle regards to R&D expenditure would cause more underinvestment in R&D expenditure and the less innovation inputs for the firms. Therefore, the hypothesis is as follows:

Hypothesis 2: Higher level of accounting conservatism would cause less R&D capitalization and less innovation inputs.

Real earnings management is the result of agency problems. Agency problems are due to the asymmetric information. Managers as 'inside controllers' manipulate financial accounting reports when the internal control system and corporate governance is weak. But when the firms borrow the debt, the creditors will evaluate the financial conditions and determine the credit line. After the debts are awarded to the debtors, the creditors further monitor the borrowers' operating processes to guarantee the timely reimbursement of principles and interests. The creditors are interested in whether the debtors applied for accounting conservatism principles in accounting treatments. The enhanced corporate governance and improved internal control quality will increase the information disclosure. The managers in higher financial leverage firms are more willing to apply for accounting conservatism principle compared with lower financial leverage firms. Therefore, when the firms have higher financial leverage, real earnings management is decreased largely and less innovation inputs.

Hypothesis 3: In higher leverage firms, the effects that accounting conservatism restricts real earnings management are larger and make the capitalized R&D costs less.

3. Sample and Measurement About the Main Variable

3.1 Sample Selection

The selected samples are from Shanghai and Shenzhen Stock Exchange Markets. All data in this paper is selected from CSMAR database in China from 2008 to 2012. Due to different financial structure in banking and financial industries with other industries, banking and financial industries have been deleted. ST firms also are omitted.

3.2 Dependent Variable

REM_PROXY

The proxy variable of real earnings management is measured as the sum of scared production costs minus scaled cash flow and scaled discretionary expenditure (Cohen et al., 2008; Roychowdhury 2006).

$$REM\_PROXY = REM\_PROD + (- REM\_CFO) + (-REM\_DISEXP) \qquad \text{(Model 1)}$$

included,

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \frac{\alpha_1}{A_{i,t-1}} + \alpha_2\frac{SALES_{i,t}}{A_{i,t-1}} + \alpha_3\frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \mu_{i,t} \qquad \text{(Model 2)}$$

The scaled cash flows (REM_CFO) is the residual value of the model 2.

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \frac{\alpha_1}{A_{i,t-1}} + \alpha_2\frac{SALES_{i,t}}{A_{i,t-1}} + \alpha_3\frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \alpha_4\frac{\Delta SALES_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \qquad \text{(Model 3)}$$

The scaled production costs (REM_PROD) is the residual value of the model 3.

$$\frac{DISEXP_{i,t}}{A_{i,t-1}} = \alpha_0 + \frac{\alpha_1}{A_{i,t-1}} + \alpha_2\frac{SALES_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \qquad \text{(Model 4)}$$

The scaled discretionary expenditure (REM_DISEXP) is the residual value of the model 4.

CAP_RD

Similar as the measurement of REM_DISEXP, the research and development expenditure are based on the firms' assets and sales revenue. The fitted value of model 5 is the fitted value of the firm's research and development expenditure which is the yhat of the model 5.

$$\frac{R\&D_{i,t}}{A_{i,t-1}} = \alpha_0 + \frac{\alpha_1}{A_{i,t-1}} + \alpha_2\frac{SALES_{i,t-1}}{A_{i,t-1}} + \mu_{i,t} \qquad \text{(Model 5)}$$

3.3 Testable Variable

CONSER_SCORE

The common measurement for accounting conservatism is followed as the Basu's method (1997). In this paper, with the combination of Basu (1997), Khan and Watts (2009) and Garc á et al.(2016) methods, accounting conservatism proxy is measured as follows:

Basu's model:

$$\frac{EPS_{i,t}}{P_{i,t-1}} = \beta_0 + \beta_1 DR_{i,t} + \beta_2 Ret_{i,t} + \beta_3 DR_{i,t} \times Ret_{i,t} + \varepsilon_{i,t} \qquad \text{(Model 6)}$$

In the model, *EPS* is earnings per share. *Ret* is the annual rate of return for the firms. *DR* is the dummy variable of *Ret* in which *DR* equals to 0 if *Ret* is more than 0, otherwise, *DR* equals to 1. In the model, the sum of β_2 and β_3 represents the timeliness of recognition of bad news.

Originated with Basu's model, Khan and Watts (2009) further designed the following models:

$$G\_Score = \beta_2 = \mu_1 + \mu_2 Size_{i,t} + \mu_3 MB_{i,t} + \mu_4 Lev_{i,t} \qquad \text{(Model 7)}$$

$$C\_Score = \beta_3 = \lambda_1 + \lambda_2 Size_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 Lev_{i,t} \qquad \text{(Model 8)}$$

The new equation will be invented by combing the above models (from model 6 to model 8). The coefficient of each independent variable is used to estimate the accounting conservatism. In this paper, the proxy of conservatism *CONSER_Score* is the sum of *G_Score* and *C-Score* (Basu, 1997; Khan and Watts, 2009; Garcia et al., 2016).

CONSER_NOA

Accounting conservatism can also be measured as proxy of unconditional conservatism *CONSER_NOA*. The *CONSER_NOA* is the result of non-operational accrual divided by last time total assets. It is assumed that there is a negative relationship between scaled non-operational accrual and accounting conservatism proxy (Givoly et al., 2000).

$$CONSER\_NOA_{it} = -\ \frac{NOPAC_{it}}{TA_{i,t-1}}$$

3.4 Definition of Variable

Variable	Definition
REM_PROXY	Indicator of real earnings management, see model 1
REM_CFO	Abnormal cash flow, residual value based on model 2
REM_PROD	Abnormal production costs, residual value based on model 3
REM_DISEXP	Abnormal discretionary expenses, residual value based on model 4
CAP_RD	Capitalized research and development costs, fitted value (*yhat*) based on model 5
CONSER_SCORE	Conservatism proxy measured as the sum of *G_score* and *C_score* (see model 6, model 7 and model 8).
CONSER_NOA	Conservatism proxy measured as non-operating accruals of this year divided by last year's assets
Size	Firm size measured as the natural log of total assets
ROA	Return on assets measured as the net income divided by total assets
Leverage	Debt level measured as the liabilities divided by assets
Firm_Age	The natural log of the length of years since the firm is set up
Industry_Fe	Fixed effect of industry
Year_Fe	Fixed effect of years

4. Research Design and Results

4.1 Descriptive Data

Table 1 describes the summary of all variable data information. The data information includes: the selected sample numbers for all variables, the mean, standard deviation, minimum value and maximum value. For the variable *REM_PROXY*, the minimum value is -61.26, while the maximum value is 2642. That means the quite difference in real earnings management. Real earnings management could be upwards manipulation and downwards manipulation. For the conditional conservatism variable *CONSER_Score*, the mean is 0.029, and minimum and maximum value are -13.30 and 5.288 respectively; for the unconditional conservatism variable *CONSER_NOA*, the range is quite large from -14.70 to 1592. This reflects unconditional conservatism proxy has higher variance deviated from the mean.

Table 1. Descriptive analysis

Variable	Obs	Mean	Std.Dev.	Min	Max
REM PROXY	8136	1.355	32.29	-61.26	2642
CAP_RD	6707	0.002	0.000289	-0.003	0.002
REM CFO	8901	0.013	1.724	-2.951	146.3
REM PROD	8136	1.577	39.85	-61.13	3260
REM DISEXP	8901	0.195	5.591	-0.030	471.2
CONSER_Score	10002	0.029	0.152	-13.30	5.288
CONSER NOA	8716	0.540	23.47	-14.70	1592
Size	8901	21.82	1.512	10.84	30.50
ROA	8903	0.034	0.710	-64.82	5.074
Leverage	8901	0.589	2.651	0.002	142.7
Firm Age	8903	13.22	4.863	1	34

4.2 Multivariate Regression Analysis

There are two measures of accounting conservatism that takes the effect of conservative principles applied in the firm's accounting treatment. In the column (1) of table 2, accounting conservatism is measured by *CONSER_Score* that followed the Basu (1997), Khan and Watts (2009); In the column (2) of table 2, the proxy of accounting conservatism is *CONSER_NOA* that based on the method of Givoly et al. (2000). The column (1) of table 2 tests the relationship between accounting conservatism and real earnings management. The column (2) of table 2 shows the relationship between accounting conservatism and innovation inputs that measured by the extent of capitalized R&D expenditure. The regression equation is on the basis of model (9). In column (1), *CONSER_Score* coefficient is -33.31, it means that the relationship between accounting conservatism and real earnings management is negative. The significant level is at the 99% level (p<0.01). This estimation result is consistent with the hypothesis 1 that means accounting conservatism is significantly negatively associated with real earnings management.

$$REM_{it} = \alpha_0 + \alpha_1 Conser\_Score_{it} + \alpha_2 Size_{it} + + \alpha_3 ROA_{it} + \alpha_4 Leverage_{it} + \alpha_5 Firm\_Age_{it}$$

$$+ \alpha_6 Industry\_FE + \alpha_7 Year\_FE + \varepsilon \qquad \text{(Model 9)}$$

The column (2) of table 2 shows the relationship between accounting conservatism and innovation inputs. The proxies of accounting conservatism and innovation inputs are measured as *CONSER_NOA* and *CAP_RD*. The testable variable of *CONSER_NOA* measured as unconditional conservatism follows the method of Givoly (2000). The independent variable of *CAP_RD* measured the extent of capitalized research and development costs that the firms expended to raise the level of innovation. The regression equation for the column (2) of table 2 is on the basis of Model (10). The coefficient of *CONSER_NOA* in the column (2) is -3.41e-07 and the significant level is 99% (p<0.01). This result is the same as the expectation in hypothesis 2 that the strict accounting conservatism will significantly restrain the innovation inputs and cause to invest less in research and development.

$$CAP\_RD_{it} = \alpha_0 + \alpha_1 Conser\_NOA_{it} + \alpha_2 Size_{it} + + \alpha_3 ROA_{it} + \alpha_4 Leverage_{it} + \alpha_5 Firm\_Age_{it}$$

$$+ \alpha_6 Industry\_FE + \alpha_7 Year\_FE + \varepsilon \qquad \text{(Model 10)}$$

Table 2. Regression analysis

VARIABLES	(1) REM_PROXY	(2) CAP_RD
CONSER_Score	-33.31***	
	(10.90)	
CONSER_NOA		-3.41e-07***
		(8.15e-08)
Size	-0.235	-2.05e-05***
	(0.456)	(3.43e-06)
ROA	10.74***	2.96e-05***
	(3.536)	(2.60e-06)
Leverage	1.627**	5.82e-06***
	(0.700)	(1.01e-06)
Firm_Age	0.264**	-2.07e-06**
	(0.130)	(1.02e-06)
Industry_FE	Yes	Yes
Year_FE	Yes	Yes
Constant	1.050	0.00259***
	(12.31)	(0.000102)
Observations	7,964	6,065
Number of ID	2,101	2,219

Standard errors in parentheses

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

In Table 3, the column (1) and column (2) respectively represents the higher level of financial leverage and lower level of financial leverage. The mean of variable Leverage is 0.589. To decide the high or low leverage, in this paper any firm that the variable *Leverage* that is more than the mean 0.589 belongs to higher level of financial leverage group, while, the variable Leverage that is lower than the mean 0.589 belongs to lower level of financial leverage group. The regression results in Table 3 show that under higher level of financial leverage, *CONSER_Score* is still negatively associated with real earning management *REM_PROXY*. The significant level is 99% (p<0.01). However, in the column (2) of Table 3, there is no significant relation between *CONSER_Score* and *REM_PROXY* under lower level of financial leverage.

Table 3. Regression analysis

VARIABLES	(1) REM_PROXY	(2) REM_PROXY
CONSER_Score	-31.71***	8.063
	(8.253)	(365.5)
Size	-0.376	-0.0951
	(0.301)	(3.968)
ROA	10.01***	12.15
	(2.656)	(9.438)
Leverage	1.506***	-0.852
	(0.497)	(20.47)
Firm_Age	0.161*	0.294*
	(0.0922)	(0.163)
Industry_FE	Yes	Yes
Year_FE	Yes	Yes
Constant	5.952	-2.536
	(8.344)	(87.41)
Observations	2,906	5,058
Number of ID	890	1,655

Standard errors in parentheses

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

Table 4 tests the relation between *CONSER_NOA* and *CAP_RD*. Similar as the method in Table 3, the firms can be divided into higher level of financial leverage and lower level of financial leverage. In the column (1) of table 4, the coefficient of *CONSER_NOA* is negative and the significant level is 99% (p<0.01). This result consists with the prediction that in hypothesis 3, accounting conservatism can significantly restrict the extent of real earnings management and invest less in research and development costs in higher level of financial leverage firms.

Table 4. Regression analysis

VARIABLES	(1) CAP_RD	(2) CAP_RD
CONSER_NOA	-3.50e-07***	-2.64e-06
	(1.15e-07)	(8.02e-06)
Size	-1.30e-05**	-1.32e-05***
	(6.34e-06)	(4.47e-06)
ROA	3.18e-05***	-0.000336***
	(3.71e-06)	(4.24e-05)
Leverage	2.88e-06*	-0.000144***

	(1.61e-06)	(2.49e-05)
Firm_Age	5.52e-06**	-3.29e-06***
	(2.23e-06)	(1.06e-06)
Industry_FE	Yes	Yes
Year_FE	Yes	Yes
Constant	0.00221***	0.00252***
	(0.000197)	(0.000116)
Observations	1,829	4,236
Number of ID	758	1,723

Standard errors in parentheses

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

The regression results of the table (3) and (4) clearly consist with the hypothesis 3 that means in the higher financial leverage firms, the accounting conservatism can restrict the real earnings management and lower the capitalized R&D expenditure.

5. Conclusions

The implication of this research is to find any way to restrict the managerial myopic behaviour that would erodes the interests of shareholders. This is important for the formulation of accounting standards and regulations, shareholders' interests protection and the improvement of internal control quality for the firms. Also, the motivation of the research is to investigate the effects of accounting conservatism on the innovation.

This research discusses an important issue that whether the accounting conservatism principle can restrict real earnings management. The results show that there is a negative relationship between accounting conservatism principle and real earnings management. The accounting conservatism really has an impact on reducing the real earnings management. Further, the research also tests accounting conservatism make the managers to reduce the innovation inputs, in other words, accounting conservatism also has an impact on the capitalization of research and development expenditure. The result shows that accounting conservatism could make the innovation inputs less. Moreover, when the firms have a higher level of financial leverage, these effects of accounting conservatism on real earnings management and innovation inputs are even larger. This paper benefits for the literature of earnings managements.

This paper investigates the relationship between accounting conservatism and innovation inputs. The innovation inputs are measured as the amounts of research and development expenditure. Future research would be suggested to focus on the whether any significant relationship between conservatism and innovation outputs. The innovation outputs could be measured as the numbers of declaration of patents. After all, how the accounting standards and regulations restrict the managerial myopic behaviour without the sacrifice of the firms' innovation is very interesting for further research.

References

Ahearne, M. J., Boichuk, J. P., Chapman, C. J., & Steenburgh, T. J. (2016). Real earnings management in sales. *Journal of Accounting Research, 54*(5), 1233-1266. https://doi.org/10.1111/1475-679X.12134

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: comparative loss recognition timeliness. *Journal of Accounting and Economics, 39*, 83-128. https://doi.org/10.1016/j.jacceco.2004.04.001

Basu, S. (1997). The Conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 49*(1-2), 34-52.

Bens, D., Nagar, V., & Wong, M. H. F. (2002). Real investment implications of employee stock option exercises. *Journal of Accounting Research, 40,* 359-393. https://doi.org/10.1111/1475-679X.00052

Bens, D., Nagar, V., Skinner, D. J., & Wong, M. H. F. (2003). Employee stock options, EPS dilution and stock repurchases. *Journal of Accounting and Economics, 36*, 51-90. https://doi.org/10.1016/j.jacceco.2003.10.006

Cheng, Q., Lee, J., & Shevlin, T. (2016). Internal governance and real earnings management. *The Accounting Review, 91*(4), 1051-1085. https://doi.org/10.2308/accr-51275

Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and accrual-based earnings management in the pre-and post-Sarbanes-Oxley periods. *The Accounting Review, 83*(3), 757-787. https://doi.org/10.2308/accr.2008.83.3.757

Einhorn, E., Langberg, N., & Versano, T. (2017). Cross-firm real earnings management. *Journal of Accounting Research, 56*(3), 883-911. https://doi.org/10.1111/1475-679X.12188

Eldenburg, L. G., Gunny, K. A., Hee, K. W., & Soderstrom , N. (2011). Earnings Management Using Real Activities: Evidence from Nonprofit Hospitals. *The Accounting Review, 86*(5), 1605-1630. https://doi.org/10.2308/accr-10095

Ewert, R., & Wagenhofer, A. (2005). Economic effects of tightening accounting standards to restrict earnings management. *The Accounting Review, 80*(4), 1101-1124. https://doi.org/10.2308/accr.2005.80.4.1101

Gao, P. (2013). A measurement approach to conservatism and earnings management. *Journal of Accounting and Economics, 55*, 251-268. https://doi.org/10.1016/j.jacceco.2012.10.001

Garc á, L. J. M., Garc á, B. O., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics, 61*(1), 221-238. https://doi.org/10.1016/j.jacceco.2015.07.003

Givoly, D., & Hayn, C. (2000). The changing time-series properties of earnings, cash flows and accruals: has financial reporting become more conservative?. *Journal of Accounting and Economics, 29*(3), 287-320. https://doi.org/10.1016/S0165-4101(00)00024-0

Glover, J. C., & Lin, H. H. (2018). Accounting conservatism and incentives: intertemporal considerations. *The Accounting Review, 93*(6), 181-201. https://doi.org/10.2308/accr-52107

Guay, W. R. (2008). Conservative financial reporting, debt covenants, and the agency costs of debt. *Journal of Accounting and Economics, 45,* 175-180. https://doi.org/10.1016/j.jacceco.2008.05.001

Hui, K. W., Matsunaga, S., & Morse, D. (2009). The impact of conservatism on management earnings forecasts. *Journal of Accounting and Economics, 47,* 192-207. https://doi.org/10.1016/j.jacceco.2009.01.001

Khan, M., & Watts, R. L. (2009). Estimation and Empirical properties of a firm-year measure of accounting conservatism. *Journal of Accounting and Economics, 48*(2), 132-150. https://doi.org/10.1016/j.jacceco.2009.08.002

Kraft, A. G., Vashishtha, R., & Venkatachalam, M. (2018). Frequent financial reporting and managerial myopia. *The Accounting Review, 93*(2), 249-275. https://doi.org/10.2308/accr-51838

Li, J. (2008). Accounting conservatism, information uncertainty and analysts' forecasts. *Working paper,* Columbia University.

Lopez, T. J., & Rees, L.L. (2001). The effect of meeting analyst forecasts and systematic positive forecast errors on the information content of unexpected earnings. *Working paper*, Georgia State University. https://doi.org/10.2139/ssrn.181929

Matsumoto, D. (2002). Management incentives to avoid negative earnings surprises. *The Accounting Review, 77,* 483-514. https://doi.org/10.2308/accr.2002.77.3.483

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42,* 335-370. https://doi.org/10.1016/j.jacceco.2006.01.002

Watts, R. L. (2003a). Conservatism in accounting. part i: explanations and implications. *Accounting Horizons, 17,* 207-222. https://doi.org/10.2308/acch.2003.17.3.207

Watts, R. L. (2003b). Conservatism in accounting. part ii: evidence and research opportunities. *Accounting Horizons, 17*, 287-302. https://doi.org/10.2308/acch.2003.17.4.287