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The influence of earnings management conducted through the use of accretive stock repurchases on audit fees

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ABSTRACT

This study investigates whether auditor perceptions of risk are affected by accretive stock repurchases, which prior research has suggested is a form of earnings management. We argue that auditors are likely to view earnings management conducted through the use of accretive stock repurchases as a signal of increased risk, leading to higher audit fees. Consistent with our hypothesis, we find evidence of a positive and significant association between the use of accretive stock repurchases as an earnings management technique and audit fees. The results suggest that audit fees are 6.0% higher when accretive stock repurchases are used to manage earnings, which corresponds to an audit fee that is approximately $107,000 higher for the average firm-year observation in our sample.

1. Introduction

This study examines whether earnings management conducted through the use of accretive stock repurchases is associated with higher audit fees.[1] While prior research most commonly focuses on earnings management that is carried out by increasing earnings (the numerator of earnings per share [EPS]), earnings management can also be executed by using share repurchases to decrease the number of shares outstanding (the denominator of EPS), which can increase EPS. Supporting this idea, prior research provides evidence that managers use share repurchases to manage earnings (e.g., Almeida, Fos, & Kronlund, 2016; Bens, Nagar, Skinner, & Wong, 2003; Cheng, Harford, & Zhang, 2015; Hribar, Jenkins, & Johnson, 2006; Myers, Myers, & Skinner, 2007). We argue that auditors are likely to view earnings management by use of accretive stock repurchases as a signal of increased risk, leading to higher audit fees.

Our study is related to prior literature that examines the auditor's response to earnings management. Prior research investigates whether earnings management affects auditor perceptions of risk, as reflected in audit fees (e.g., Abbott, Parker, & Peters, 2006; Greiner, Kohlbeck, & Smith, 2013; Gul, Chen, & Tsui, 2003; Krishnan, Sun, Wang, & Yang, 2013; Schelleman & Knechel, 2010). This stream of literature provides evidence of a positive association between earnings management and audit fees. While prior studies in this area focus on earnings management that is executed by increasing earnings, a distinguishing feature of our study is that we investigate earnings management that is accomplished by decreasing the number of shares outstanding by the use of share repurchases.

Regardless of its form, earnings management is an unscrupulous practice because it is used to "either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy & Wahlen, 1999). When using accretive stock repurchases as an earnings management technique, managers are likely to be successful in deceiving at least some investors about the firm's financial performance. Consistent with this idea, Hribar et al. (2006) provide evidence that using accretive stock repurchases to meet or beat analysts' EPS targets helps reduce the negative stock price reaction that is associated with failing to reach analysts' forecasts of EPS.

Further, recent research suggests that managers use share repurchases to opportunistically manipulate EPS and provides evidence that this manipulation negatively affects the firm. For example, Cheng et al. (2015) find that share repurchases are more likely to occur when a CEO's bonus is linked to EPS, and this effect is stronger when the firm would have missed the bonus-inducing EPS target without a share repurchase. The authors also show that firms linking CEO bonuses to EPS fail to achieve positive long-run abnormal returns. In addition, Almeida et al. (2016) provide evidence that firms engage in accretive

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[1] Accretive stock repurchases are share repurchases that increase earnings per share.

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stock repurchases to meet or beat analysts' forecasts of EPS. The authors furthermore find that these share repurchases are associated with decreased employment and investment.[2]

Although auditors are unable to challenge earnings management conducted through the use of share repurchases because it involves the firm engaging in real business transactions, auditors are likely to take notice of management's willingness and desire to manipulate financial results. While accretive stock repurchases, in and of themselves, should not affect audit risk[3] as long as the share repurchases are properly reflected in the financial reports, when an auditor observes management using share repurchases as an earnings management technique in order to artificially achieve certain financial results, it may provide a signal of low management integrity. Hence, even when the EPS-increasing effect of accretive stock repurchases is reflected appropriately in the financial reports, using share repurchases to manage earnings may influence an auditor's assessment of audit risk by affecting the auditor's perception of management integrity.

Auditing standards as well as the Committee of Sponsoring Organizations (COSO) recognize that management integrity affects audit risk. For example, Auditing Standard No. 12 addresses the impact of management integrity on the control environment, which is an important factor that affects audit risk (PCAOB, 2010b). Auditing Standard No. 12 states "Obtaining an understanding of the control environment includes assessing whether sound integrity and ethical values, particularly of top management, are developed and understood" (PCAOB, 2010b). In addition, with respect to assessing audit risk in making client-acceptance decisions, COSO notes: "screening of potential risks, particularly the impact of management's integrity and ethical values, may lead to better considerations of overall audit risk" (COSO, 1999). Accordingly, upon an auditor observing earnings management conducted through the use of accretive stock repurchases, the auditor is likely to perceive audit risk as being higher if the auditor views earnings management as a signal that management integrity may be low.

Based on prior literature that investigates the relation between audit risk and audit fees (e.g., Gul et al., 2003; Hogan & Wilkins, 2008; Krishnan et al., 2013; Schelleman & Knechel, 2010; Simunic, 1980), we expect auditors to respond to greater audit risk by charging higher audit fees. Therefore, we hypothesize a positive association between earnings management conducted through the use of accretive stock repurchases and audit fees.

We test our hypothesis using a sample of 19,136 firm-year observations from the period 2005–2013. To identify accretive stock repurchases that were likely used to manage earnings, we utilize an indicator variable that identifies accretive stock repurchases that allowed a firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents. Using an audit fee model that controls for many determinants of audit fees established by prior research, we find a positive and significant association between accretive stock repurchases that allowed a firm to meet or beat analysts' forecasts of EPS and audit fees. The results suggest that audit fees are 6.0% higher when accretive stock repurchases are used to manage earnings. This represents an audit fee that is approximately $107,000 higher for the average firm-year observation in our sample.

This study contributes to the stream of research that examines the use of accretive stock repurchases as an earnings management technique. While prior research suggests that managers use share repurchases to manage earnings (e.g., Almeida et al., 2016; Bens et al., 2003; Cheng et al., 2015; Hribar et al., 2006; Myers et al., 2007), we are not aware of any study that has examined whether auditors view this practice as increasing audit risk. We fill this void in the literature by providing evidence that using accretive stock repurchases to manage earnings is associated with higher audit fees. This study also contributes to the line of literature that investigates the influence of earnings management on auditor risk assessments. While prior studies in this area examine earnings management that is carried out by increasing earnings (e.g., Abbott et al., 2006; Greiner et al., 2013; Gul et al., 2003; Krishnan et al., 2013; Schelleman & Knechel, 2010), we are the first to investigate whether earnings management that is achieved by decreasing the number of shares outstanding through the use of share repurchases affects auditor risk assessments. Our study also adds to this line of literature by examining the influence of earnings management on audit fees using an earnings management proxy that does not rely on fitted models, as is the case with discretionary accruals and commonly used measures of real earnings management. Thus, our study helps move this line of research forward by providing triangulation concerning this research question.[4]

The rest of this paper is structured as follows. Section 2 discusses background literature and formally states our hypothesis, Section 3 describes our methodology, Section 4 presents the results of the study, and Section 5 provides concluding remarks.

2. Background literature and hypothesis

Open-market share repurchase programs are required to be approved by a firm's board of directors and are typically completed within three years of when the program is initiated (Burnett, Cripe, Martin, & McAllister, 2012; Hribar et al., 2006; Stephens & Weisbach, 1998). Once the board of directors authorizes a certain quantity of shares to be repurchased, managers have the ability to determine both the timing of share repurchases as well as the quantity of shares to be repurchased (Burnett et al., 2012; Cook, Krigman, & Leach, 2003; Hribar et al., 2006).[5] Since share repurchases decrease both the numerator and denominator of EPS, share repurchases can either increase or decrease EPS. Share repurchases decrease the numerator of EPS because the firm incurs an opportunity cost attributable to not being able to earn a return on the cash that it expended for the repurchases, while share repurchases decrease the denominator of EPS by decreasing the number of shares outstanding (Burnett et al., 2012; Hribar et al., 2006).

Several studies investigate the use of accretive stock repurchases as an earnings management technique. Bens et al. (2003) suggest that firms increase EPS through the use of share repurchases in order to maintain EPS growth rates and in response to EPS dilution from employee stock options. Hribar et al. (2006) find that managers use accretive stock repurchases to boost EPS in order to meet or beat analysts' forecasts of EPS. The authors also suggest that using share repurchases to meet or beat analysts' EPS targets helps reduce the negative stock price reaction that is associated with failing to reach analysts' forecasts of EPS. Myers et al. (2007) investigate earnings management by firms

[2] The business press has also recognized that CEOs may use share repurchases to opportunistically manipulate EPS to the detriment of shareholders. *Reuters* notes that "Soaring CEO pay tied to short-term performance measures like EPS is prompting criticism that executives are using stock repurchases to enrich themselves at the expense of long-term corporate health, capital investment and employment" (Brettell, Gaffen, & Rohde, 2015). Also, *The Wall Street Journal* notes that "As corporations step up stock repurchases to return cash to shareholders, compensation targets tied to per-share earnings—a common factor in executive-pay calculations—are helping increase many executives' pay. The link worries some investors and compensation advisers because they fear the figure is too easily manipulated" (Thurm & Ng, 2013). *Reuters* cites the following example regarding a share repurchase by Humana: "It added around two cents to the company's annual earnings per share, allowing Humana to surpass its $7.50 EPS target by a single cent and unlocking higher pay for top managers under terms of the company's compensation agreement. Thanks to Humana hitting that target, Chief Executive Officer Bruce Broussard earned a $1.68 million bonus for 2014" (Brettell et al., 2015).

[3] Audit risk is the "risk that the auditor expresses an inappropriate audit opinion when the financial statements are materially misstated" (PCAOB, 2010a).

[4] Abdel-Khalik and Ajinkya (1979) note that "multiplicity of methods, or 'triangulation,' is a desirable feature of research… The extent to which triangulation produces similar results can be used as a measure of confidence in the findings and validity of the underlying theory."

[5] Managers are not required to repurchase the entire quantity of shares that were authorized by the board of directors to be repurchased (Stephens & Weisbach, 1998).

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that have avoided a decrease in EPS for at least 20 consecutive quarters. The authors provide evidence that repurchasing shares is one of the earnings management techniques employed by these firms to avoid declines in EPS.

Burnett et al. (2012) argue that firms audited by higher quality auditors are more likely to manage earnings by the use of accretive stock repurchases rather than discretionary accruals because auditors are unable to challenge earnings management that is conducted by the use of share repurchases. The authors find that firms audited by an industry specialist auditor are more likely to meet or beat analysts' forecasts of EPS by managing earnings using accretive stock repurchases rather than by managing earnings using discretionary accruals.

As discussed previously, although auditors cannot challenge earnings management that is conducted through the use of share repurchases, auditors are still likely to take notice of management's willingness and desire to use earnings management to manipulate financial results, which may affect the auditor's view of management integrity. Based on auditing standards and statements from COSO (i.e., COSO, 1999; PCAOB, 2010b), we expect that when an auditor observes earnings management conducted through the use of accretive stock repurchases, the auditor is likely to perceive audit risk as being higher if the auditor views earnings management as a signal that management integrity may be low.[6] Prior research suggests that auditors respond to greater audit risk by charging higher audit fees (e.g., Gul et al., 2003; Hogan & Wilkins, 2008; Krishnan et al., 2013; Schelleman & Knechel, 2010; Simunic, 1980). Therefore, we expect earnings management conducted through the use of accretive stock repurchases to be associated with higher audit fees. Our hypothesis, stated in alternative form, is as follows.

H1. Earnings management conducted through the use of accretive stock repurchases is positively associated with audit fees.

3. Methodology

3.1. Identifying accretive stock repurchases used to manage earnings

Our method of identifying accretive stock repurchases that were used to manage earnings is based on the approaches used by Hribar et al. (2006) and Burnett et al. (2012). We classify a share repurchase as being indicative of earnings management when the share repurchase allows a firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents (Burnett et al., 2012). In order to determine the effect of a share repurchase on EPS, we compare the firm's actual EPS to the EPS the firm would have attained without the share repurchase.

Since share repurchases decrease both the numerator and the denominator of EPS, we must remove the effects of the share repurchase from the numerator and denominator to determine the value that EPS would have taken without the share repurchase. To calculate the denominator as if there had not been a repurchase, we follow Hribar et al. (2006) as well as Burnett et al. (2012) and compute the denominator as the number of common shares outstanding at the beginning of the quarter plus 50% of the number of shares issued during the quarter. This provides the value that the denominator would have taken had there not been the denominator-decreasing effect of the share repurchases.

Had a firm not engaged in share repurchases, it would have also avoided the opportunity cost attributable to not earning a return on the cash it expended for the repurchases, meaning that this opportunity cost must be added to the numerator of EPS to remove the effect of the share repurchases. Following Hribar et al. (2006) and Burnett et al. (2012), we first determine whether a firm had excess cash on hand that could be used to conduct the share repurchases or whether a firm had to borrow cash to carry out the repurchases, because each scenario affects the calculation of the opportunity cost differently. We consider a firm's excess cash to be cash greater than 6% of total assets for retail firms or 2% of total assets for any other type of firm (Burnett et al., 2012; Copeland, Koller, & Murrin, 2000; Hribar et al., 2006). The opportunity cost of the cash expended for the portion of the share repurchase that does not exceed the amount of the firm's excess cash is calculated as the dollar amount of the share repurchase (up to the amount of the firm's excess cash) multiplied by the three-month treasury bill rate, while the opportunity cost of the cash expended for the portion of the share repurchase that exceeds the amount of the firm's excess cash is calculated as the dollar amount of the share repurchase that exceeds the firm's excess cash multiplied by the firm's average interest rate (Burnett et al., 2012; Hribar et al., 2006).[7] Then, consistent with Hribar et al. (2006) and Burnett et al. (2012), we use marginal tax rates to determine the after-tax amount of the opportunity cost. We utilize marginal tax rates available in the Compustat Marginal Tax Rates database.

Following Hribar et al. (2006) and Burnett et al. (2012), we compute the value a firm's EPS would have taken if it did not engage in share repurchases as follows.

$$\text{NOREPUR\_EPS} = (\text{NI} + \text{OPP\_COST})/(\text{SHARESOUT} + 0.5 * \text{SHARESISSUED})$$

where:

NI	quarterly income before extraordinary items available to common shareholders
OPP_COST	the opportunity cost incurred for engaging in share repurchases, calculated as described previously
SHARESOUT	the number of common shares outstanding at the beginning of the quarter
SHARESISSUED	the number of common shares issued during the quarter

Following Burnett et al. (2012), we consider a share repurchase as being suggestive of earnings management if the repurchase allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents. Thus, we assign our test variable, ASR, the value of 1 if, during any quarter within a given fiscal year, a firm meets or beats the consensus analyst forecast of EPS by no more than five cents and NOREPUR_EPS is less than the consensus analyst forecast of EPS by no more than five cents. ASR takes the value of 0 otherwise.[8]

[6] A potential concern is that real earnings management, including accretive stock repurchases, may not be especially salient to the auditor throughout the course of the year. While auditors do not conduct audits of each quarter within the fiscal year, auditors are still responsible for conducting quarterly reviews of the financial reports in addition to an annual audit. Therefore, auditors are familiar with the company's financial activities throughout the year. We do not necessarily believe that auditors are always going to actively search for earnings management conducted through accretive stock repurchases. However, auditors are aware of when a firm is conducting share repurchases, and in the event that a firm exceeds its EPS target by a small margin, auditors may realize that the EPS target would not have been met without the EPS-inflating effect of an accretive stock repurchase. Ultimately, to the extent that some auditors are not aware of accretive stock repurchases it biases us against finding statistically significant results. In addition, prior research suggests that auditors respond to real earnings management. Specifically, Kim and Park (2014) find a positive association between real earnings management and auditor resignations.

[7] For a given quarter, a firm's average interest rate is calculated as its interest expense divided by its average debt (Burnett et al., 2012; Francis, Reichelt, & Wang, 2005). Consistent with Burnett et al. (2012), if information necessary to determine a firm's average interest rate is unavailable then we use the average industry interest rate, with industries defined using 2-digit SIC codes.

[8] Hribar et al. (2006) and Burnett et al. (2012) suggest that share repurchases that are greater than 20% of a firm's common shares outstanding in a given quarter are not likely to be repurchases motivated by earnings management. Accordingly, we also code ASR as 0 in these instances.

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Table 1
Descriptive statistics.

Panel A: Summary statistics

	Sample ($N = 19,136$)						
	Mean	Median	Std Dev	1%	25%	75%	99%
AUDIT FEES	1,784,644	951,000	2,577,654	93,410	471,000	1,878,500	16,800,000
TOTAL ASSETS	2261.50	417.90	5873.85	6.29	117.17	1577.33	40,971.00
FEES	13.79	13.77	1.07	11.45	13.06	14.45	16.63
ASR	0.024	0.000	0.153	0.000	0.000	0.000	1.000
REPUR	0.42	0.00	0.49	0.00	0.00	1.00	1.00
SIZE	6.07	6.04	1.87	1.86	4.76	7.36	10.62
ROA	−0.03	0.03	0.23	−1.10	−0.05	0.08	0.35
ACCR	0.10	0.06	0.13	0.00	0.03	0.12	0.79
CA	0.53	0.53	0.24	0.06	0.35	0.72	0.98
DISACC	−0.02	−0.01	0.12	−0.55	−0.06	0.03	0.40
DISCACC	−0.02	−0.02	0.12	−0.56	−0.06	0.03	0.40
FOREIGN	0.22	0.07	0.28	0.00	0.00	0.41	1.00
BSEGS	2.18	1.00	1.55	1.00	1.00	3.00	7.00
LEV	0.50	0.47	0.30	0.07	0.29	0.65	1.79
LOSS	0.35	0.00	0.48	0.00	0.00	1.00	1.00
DECFYE	0.67	1.00	0.47	0.00	0.00	1.00	1.00
ARLAG	103.54	100.00	32.76	57.00	86.00	116.00	284.00
TENURE	10.37	8.00	8.90	1.00	4.00	14.00	38.00
ACQ	0.11	0.00	0.31	0.00	0.00	0.00	1.00
LIT	0.43	0.00	0.49	0.00	0.00	1.00	1.00
ACQ	0.12	0.00	0.32	0.00	0.00	0.00	1.00
HIGHLIT	0.44	0.00	0.50	0.00	0.00	1.00	1.00
GCO	0.04	0.00	0.18	0.00	0.00	0.00	1.00
AGE	20.63	16.00	14.85	3.00	10.00	26.00	62.00
AGE	20.55	16.00	14.77	3.00	10.00	26.00	62.00
SPEC	0.29	0.00	0.46	0.00	0.00	1.00	1.00
BIG	0.80	1.00	0.40	0.00	1.00	1.00	1.00
SECTIER	0.14	0.00	0.35	0.00	0.00	0.00	1.00

Panel B: Pearson correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) FEES																						
(2) ASR	*0.00*																					
(3) REPUR	**0.32**	**0.18**																				
(4) SIZE	**0.84**	*−0.00*	**0.37**																			
(5) ROA	**0.26**	**0.06**	**0.26**	**0.41**																		
(6) ACCR	**−0.18**	**−0.04**	**−0.13**	**−0.27**	**−0.55**																	
(7) CA	**−0.27**	*0.01*	**−0.10**	**−0.45**	**−0.22**	**0.06**																
(8) DISACC	**−0.04**	*−0.00*	**−0.02**	*−0.01*	**0.29**	**−0.47**	*−0.01*															
(9) FOREIGN	**0.33**	*−0.00*	**0.11**	**0.20**	**0.12**	**−0.09**	**0.10**	*−0.01*														
(10) BSEGS	**0.42**	*−0.00*	**0.19**	**0.40**	**0.19**	**−0.15**	**−0.22**	**0.03**	**0.11**													
(11) LEV	**0.16**	**−0.06**	**−0.09**	**0.14**	**−0.22**	**0.24**	**−0.22**	**−0.06**	**−0.09**	**0.09**												
(12) LOSS	**−0.22**	**−0.09**	**−0.29**	**−0.36**	**−0.65**	**0.40**	**0.15**	**−0.22**	**−0.08**	**−0.20**	**0.15**											
(13) DECFYE	**0.06**	**0.02**	**−0.05**	**0.03**	**−0.10**	**0.06**	**−0.06**	**−0.03**	**−0.02**	*−0.01*	**0.06**	**0.08**										
(14) ARLAG	**−0.17**	*−0.01*	**−0.14**	**−0.28**	**−0.20**	**0.13**	**0.11**	**−0.04**	**−0.05**	**−0.12**	**−0.02**	**0.20**	**0.02**									
(15) TENURE	**0.35**	*0.01*	**0.25**	**0.37**	**0.15**	**−0.12**	**−0.08**	**0.04**	**0.15**	**0.24**	*0.01*	**−0.19**	**−0.05**	**−0.17**								
(16) ACQ	**0.08**	*0.00*	*0.01*	**0.08**	**0.06**	**−0.07**	**−0.16**	**−0.05**	*0.00*	**0.08**	**−0.02**	**−0.05**	**0.02**	*0.00*	**−0.02**							
(17) HIGHLIT	**−0.10**	**0.03**	**−0.04**	**−0.17**	**−0.18**	**0.10**	**0.24**	**−0.08**	**0.02**	**−0.24**	**−0.07**	**0.14**	**−0.06**	**0.10**	**−0.08**	*−0.00*						
(18) GCO	**−0.15**	**−0.03**	**−0.13**	**−0.23**	**−0.39**	**0.30**	**0.04**	**−0.03**	**−0.04**	**−0.08**	**0.28**	**0.22**	**0.03**	**0.12**	**−0.06**	**−0.04**	**0.04**					
(19) AGE	**0.32**	*0.01*	**0.24**	**0.35**	**0.20**	**−0.15**	**−0.11**	**0.09**	**0.14**	**0.34**	**0.05**	**−0.22**	**−0.13**	**−0.18**	**0.54**	**−0.03**	**−0.18**	**−0.06**				
(20) SPEC	**0.27**	**0.02**	**0.10**	**0.25**	**0.06**	**−0.06**	**−0.07**	*−0.01*	**0.09**	**0.10**	*0.01*	**−0.07**	**0.04**	**−0.07**	**0.16**	**0.02**	*0.00*	**−0.04**	**0.06**			
(21) BIG	**0.45**	*0.00*	**0.17**	**0.43**	**0.08**	**−0.08**	**−0.11**	**−0.04**	**0.10**	**0.13**	**0.05**	**−0.10**	**0.06**	**−0.14**	**0.31**	**0.02**	*0.00*	**−0.09**	**0.04**	**0.32**		
(22) SECTIER	**−0.31**	*0.01*	**−0.12**	**−0.30**	**−0.05**	**0.06**	**0.06**	**0.02**	**−0.07**	**−0.10**	**−0.03**	**0.07**	**−0.06**	**0.10**	**−0.24**	*−0.00*	*−0.00*	**0.05**	**−0.03**	**−0.26**	**−0.82**	

Table 1, Panel A provides descriptive statistics for our sample of 19,136 firm-year observations from the period 2005–2013. All continuous variables are winsorized at the 1st and 99th percentiles. In Panel B, bolded values indicate statistical significance at the $p < 0.05$ level using a 2-tailed test, while italicized values indicate statistically insignificant associations ($p > 0.05$). AUDIT FEES is total audit fees in dollars. TOTAL ASSETS is total assets (in millions). FEES is the natural logarithm of total audit fees. ASR is an indicator variable that takes the value of 1 if, during any quarter within a given fiscal year, a firm conducted an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents, and 0 otherwise. REPUR is an indicator variable that takes the value of 1 if a firm repurchases shares during any quarter within a given fiscal year, and 0 otherwise. SIZE is the natural logarithm of total assets (in millions). ROA is net income scaled by average total assets. ACCR is the absolute value of total accruals scaled by total assets. CA is current assets scaled by total assets. DISCACC is performance-adjusted discretionary accruals, estimated following the method used by Reichelt and Wang (2010). FOREIGN is foreign sales scaled by total sales. BSEGS is the number of business segments. LEV is total liabilities scaled by total assets. LOSS is an indicator variable that takes the value of 1 if income before extraordinary items is negative, and 0 otherwise. DECFYE is an indicator variable that takes the value of 1 if a firm's fiscal year ends in December, and 0 otherwise. ARLAG is the number of days in between the firm's fiscal year-end and the date the audit report was filed. TENURE is the length of the auditor–client relationship in years. ACQ is an indicator variable that takes the value of 1 if a firm conducts an acquisition, and 0 otherwise. HIGHLIT is an indicator variable that takes the value of 1 if a firm operates in an industry that has high litigation risk (SIC codes 2833–2836, 3570–3577, 3600–3674, 5200–5961, 7370–7374, 8731–8734), and 0 otherwise. GCO is an indicator variable that takes the value of 1 if a firm is issued a going-concern audit opinion, and 0 otherwise. AGE is the number of years a firm has been on Compustat. SPEC is an indicator variable that takes the value of 1 if a firm is audited by an industry specialist auditor, with industry specialist auditors defined following the approach used by Fung et al. (2012), and 0 otherwise. BIG is an indicator variable that takes the value of 1 if a firm is audited by a Big 4 auditor, and 0 otherwise. SECTIER is an indicator variable that takes the value of 1 if a firm is audited by Grant Thornton or BDO Seidman, and 0 otherwise.

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3.2. Empirical model

To test our hypothesis, we regress the natural logarithm of total audit fees on our test variable, ASR, as well as control variables that were selected based on prior research (e.g., Ball, Jayaraman, & Shivakumar, 2012; Francis et al., 2005; Hay, Knechel, & Wong, 2006; Simunic, 1980). In order to limit the influence of extreme observations, we winsorize all continuous variables at the 1st and 99th percentiles. We also cluster standard errors by firm (Rogers, 1993). We utilize the following model:

$$\begin{aligned} FEES = {} & \alpha + \beta_1 ASR + \beta_2 REPUR + \beta_3 SIZE + \beta_4 ROA + \beta_5 ACCR + \beta_6 CA \\ & + \beta_7 DISCACC + \beta_8 FOREIGN + \beta_9 BSEGS + \beta_{10} LEV + \beta_{11} LOSS \\ & + \beta_{12} DECFYE + \beta_{13} ARLAG + \beta_{14} TENURE + \beta_{15} ACQ \\ & + \beta_{16} HIGHLIT + \beta_{17} GCO + \beta_{18} AGE + \beta_{19} SPEC + \beta_{20} BIG \\ & + \beta_{21} SECTIER + \beta_i INDUSTRY + \beta_j YEAR + \varepsilon \end{aligned} \quad (1)$$

where:

FEES	the natural logarithm of total audit fees
ASR	an indicator variable that takes the value of 1 if, during any quarter within a given fiscal year, a firm conducted an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents, and 0 otherwise (as described in more detail in Section 3.1)
REPUR	an indicator variable that takes the value of 1 if a firm repurchases shares during any quarter within a given fiscal year, and 0 otherwise
SIZE	the natural logarithm of total assets (in millions)
ROA	net income scaled by average total assets
ACCR	the absolute value of total accruals scaled by total assets
CA	current assets scaled by total assets
DISCACC	performance-adjusted discretionary accruals, estimated following the method used by Reichelt and Wang (2010)
FOREIGN	foreign sales scaled by total sales
BSEGS	the number of business segments
LEV	total liabilities scaled by total assets
LOSS	an indicator variable that takes the value of 1 if income before extraordinary items is negative, and 0 otherwise
DECFYE	an indicator variable that takes the value of 1 if a firm's fiscal year ends in December, and 0 otherwise
ARLAG	the number of days in between the firm's fiscal year-end and the date the audit report was filed
TENURE	the length of the auditor–client relationship in years
ACQ	an indicator variable that takes the value of 1 if a firm conducts an acquisition, and 0 otherwise
HIGHLIT	an indicator variable that takes the value of 1 if a firm operates in an industry that has high litigation risk (SIC codes 2833–2836, 3570–3577, 3600–3674, 5200–5961, 7370–7374, 8731–8734), and 0 otherwise
GCO	an indicator variable that takes the value of 1 if a firm is issued a going-concern audit opinion, and 0 otherwise.
AGE	the number of years a firm has been on Compustat
SPEC	an indicator variable that takes the value of 1 if a firm is audited by an industry specialist auditor, with industry specialist auditors defined following the approach used by Fung, Gul, and Krishnan (2012), and 0 otherwise
BIG	an indicator variable that takes the value of 1 if a firm is audited by a Big 4 auditor, and 0 otherwise
SECTIER	an indicator variable that takes the value of 1 if a firm is audited by Grant Thornton or BDO Seidman, and 0 otherwise
INDUSTRY	industry fixed effects, using 3-digit SIC codes to define industries
YEAR	year fixed effects

Table 2
Audit fee model regression.

DV = FEES	Predicted sign	Coefficient	T-statistic
ASR	+	0.059	2.31**
REPUR	?	0.012	1.00
SIZE	+	0.486	73.17***
ROA	–	−0.362	−9.56***
ACCR	+	0.169	3.32***
CA	+	0.344	8.08***
DISCACC	+	0.204	4.73***
FOREIGN	+	0.483	14.24***
BSEGS	+	0.050	8.70***
LEV	+	0.194	7.35***
LOSS	+	0.063	4.57***
DECFYE	+	0.060	3.40***
ARLAG	+	0.002	9.93***
TENURE	?	−0.002	−1.49
ACQ	+	0.054	4.07***
HIGHLIT	+	−0.060	−1.02
GCO	+	0.020	0.70
AGE	?	0.002	3.21***
SPEC	+	0.047	3.41***
BIG	+	0.447	13.87***
SECTIER	+	0.257	7.67***
INTERCEPT	?	8.778	64.23***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		81.14%	
N		19,136	

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. Refer to Table 1 for a detailed description of each variable.

We control for whether a firm repurchases shares to control for the possibility that firms engaging in any type of share repurchase are systematically different from firms that do not repurchase shares. We control for firm size because prior research suggests that firm size is the primary driver of audit fees (e.g., Hay et al., 2006). We include return on assets and negative earnings as control variables because less profitable firms are expected to present greater risk to the auditor (e.g., Simunic, 1980). Similarly, we also control for leverage and the issuance of a going-concern audit opinion to capture the financial condition of the firm. Audit complexity is accounted for by including total accruals, current assets, foreign sales, and the number of business segments as control variables (Ball et al., 2012). We also expect acquisitions to contribute to audit complexity as well. We control for discretionary accruals because prior research finds a positive association between earnings management and audit fees (e.g., Abbott et al., 2006; Gul et al., 2003; Krishnan et al., 2013; Schelleman & Knechel, 2010). We include a December fiscal year-end indicator variable because audits that take place during an auditor's busy season are expected to be more costly (Hay et al., 2006).

We control for audit report lag because a longer delay between the end of the fiscal year and the issuance of the audit report may indicate complications with the audit, implying higher audit fees (Hay et al., 2006). Auditor tenure is included as a control variable to reflect changes in audit fees that may occur over the course of the auditor–client relationship. We control for high litigation risk industries because firms operating in these industries may present greater risk to the auditor. Firm age is included as a control variable because more mature firms may be systematically different from younger firms. Auditor industry specialization is included as a control variable because prior research finds that industry specialists are associated with an audit fee premium (e.g., Carson, 2009; Francis et al., 2005; Fung et al., 2012). Similarly, we also control for Big 4 auditors as well as second-tier auditors to capture the differing levels of audit fees these auditors charge. Lastly, we include year and industry fixed effects to control for time period and industry membership.

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Table 3
Matching audit fee model regression.

DV = FEES	Predicted sign	Coefficient	T-statistic
ASR	+	0.076	2.37***
SIZE	+	0.462	20.95***
ROA	–	−0.078	−0.28
ACCR	+	0.326	1.19
CA	+	0.327	2.64***
DISCACC	+	0.242	0.89
FOREIGN	+	0.545	5.29***
BSEGS	+	0.035	2.37***
LEV	+	0.279	2.16**
LOSS	+	0.132	2.04**
DECFYE	+	0.008	0.18
ARLAG	+	0.000	0.28
TENURE	?	0.000	0.05
ACQ	+	0.051	1.14
HIGHLIT	+	−0.140	−0.74
GCO	+	−0.089	−0.51
AGE	?	0.001	0.64
SPEC	+	0.042	0.94
BIG	+	0.184	1.92**
SECTIER	+	0.053	0.49
INTERCEPT	?	9.819	44.06***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		78.38%	
N		874	

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. REPUR is omitted from this regression because all of the observations in our matching sample engage in share repurchases. Refer to Table 1 for a detailed description of each variable.

Table 4
Propensity score matching.

Panel A: First-stage model

DV = ASR	Predicted sign	Coefficient	T-statistic
SIZE	?	−0.334	−5.51***
ROA	?	−0.395	−0.63
ACCR	?	−1.472	−1.31
CA	?	0.205	0.48
DISCACC	?	−0.738	−1.03
FOREIGN	?	−0.215	−0.64
BSEGS	?	0.023	0.45
LEV	?	−0.521	−1.41
LOSS	?	−1.404	−4.63***
DECFYE	?	−0.034	−0.22
ARLAG	?	−0.001	−0.32
TENURE	?	−0.007	−0.66
ACQ	?	0.036	0.20
HIGHLIT	?	0.761	1.30
AGE	?	0.007	1.14
SPEC	?	0.203	1.61
BIG	?	0.700	1.97**
SECTIER	?	0.772	2.12**
INTERCEPT	?	−15.228	−17.81***
Industry fixed effects		Included	
Year fixed effects		Included	
Pseudo R^2		10.97%	
N		6767	

Panel B: Second-stage model

DV = FEES	Predicted sign	Coefficient	T-statistic
ASR	+	0.084	2.51***
SIZE	+	0.449	17.41***
ROA	–	−0.335	−1.18
ACCR	+	−0.147	−0.34
CA	+	0.339	2.57***
DISCACC	+	−0.065	−0.22
FOREIGN	+	0.483	3.60***
BSEGS	+	0.036	2.53***
LEV	+	0.304	1.96**
LOSS	+	0.140	1.73**
DECFYE	+	0.047	1.00
ARLAG	+	0.001	1.57*
TENURE	?	−0.001	−0.38
ACQ	+	0.013	0.22
HIGHLIT	+	−0.057	−0.32
AGE	?	0.003	1.77*
SPEC	+	0.073	1.78**
BIG	+	0.432	4.18***
SECTIER	+	0.240	2.09**
INTERCEPT	?	9.732	38.53***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		78.93%	
N		882	

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. Refer to Table 1 for a detailed description of each variable.

4. Sample and results

4.1. Sample

Our sample was generated using the Compustat, IBES, and Audit Analytics databases. Following prior research that examines the use of accretive stock repurchases to manage earnings (e.g., Burnett et al., 2012; Hribar et al., 2006), we omitted observations in the financial, utility, and transportation industries. We also excluded foreign firms, firms that have less than one million dollars in total assets, and observations that are missing required data. The sample period spans from 2005 through 2013,[9] and the sample includes 19,136 firm-year observations from 3732 unique firms.

4.2. Descriptive statistics

We provide descriptive statistics for our sample in Table 1. Panel A of Table 1 reveals that share repurchases occurred in 42% of the firm-years in our sample, while 2.4% of the firm-years in our sample engaged in an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when it otherwise would have missed the EPS target by no more than five cents. The descriptive statistics also show that the mean (median) firm-year in our sample has ROA of −0.03 (0.03), CA of 0.53 (0.53), LEV of 0.50 (0.47), FOREIGN of 0.22 (0.07), and 35% of the firm-years have negative earnings. The table furthermore indicates that 80% (14%) of the firm-years in our sample are audited by a Big 4 (second-tier) auditor, and 29% of the firm-years are audited by an industry specialist auditor.

Panel B of Table 1 presents a Pearson correlation matrix. Panel B indicates that ASR is correlated with share repurchases, return on assets, total accruals, leverage, negative earnings, December fiscal year-end, high litigation risk industries, going-concern opinions, and auditor industry specialization. Panel B shows that ASR is not highly correlated with any of the independent variables, suggesting that multicollinearity is not a concern. ASR is most highly correlated with share repurchases, as to be expected, with a correlation coefficient of 0.18.

4.3. Main results

The results of estimating Eq. (1) are presented in Table 2. Consistent with prior research, the model has high explanatory power, with an

[9] SEC Rule 10b-18 requires firms to report the number of shares issued and repurchased each quarter. However, this requirement did not apply to fiscal years that ended before December 15, 2004. Therefore, we choose to start our sample period in 2005.

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adjusted R^2 of 81.14%. As expected, there are positive coefficients on firm size as well as each of the audit complexity control variables: total accruals, current assets, foreign sales, the number of business segments, and acquisitions. Also consistent with expectations, there is a negative coefficient on return on assets and positive coefficients on leverage and the negative earnings indicator variable. Consistent with prior research, the results indicate fee premiums for industry specialist auditors and Big 4 auditors. Table 2 also shows that all of the other statistically significant control variables load in the expected direction.

Turning to our variable of interest, the results reveal a positive and significant ($p = 0.011$) relation between earnings management conducted through the use of accretive stock repurchases and audit fees. This result provides support for our hypothesis. We next interpret the economic significance of the coefficient on ASR. Because the dependent variable is expressed as the natural logarithm of total audit fees, we must transform the coefficient on ASR by $e^b - 1$ in order to determine the impact of ASR on audit fees.[10] The results indicate that audit fees are 6.0% higher when accretive stock repurchases are used to manage earnings, which represents an audit fee that is approximately $107,000 higher for the average firm-year observation in our sample.[11]

4.4. Further analyses

4.4.1. Matching analysis

As an additional analysis, we investigate whether our results continue to hold when we match firms that conducted earnings management through the use of accretive stock repurchases to similarly sized firms in the same industry that engaged in share repurchases that were not used to manage earnings. To execute this test, we match firm-years where ASR takes the value of 1 to control firm-years where ASR takes the value of 0 and REPUR takes the value of 1. We require the matched pairs to be in the same industry, based on 3-digit SIC, and during the same year. From this set of potential control firm-years, we choose the one that is closest to the ASR firm-year based on total assets. This results in a sample for our matching analysis of 874 firm-year observations, containing an equal number of ASR firm-years and control firm-years. We next re-estimate Eq. (1).[12]

The results from the matching analysis, presented in Table 3, indicate a positive and significant coefficient on ASR ($p < 0.01$), consistent with our primary analysis. The coefficient on ASR suggests that audit fees are 7.9% higher when accretive stock repurchases are used to manage earnings. This corresponds to an audit fee that is approximately $128,000 higher for the average firm-year observation in our matching sample. Therefore, the results of the matching analysis indicate that, even when compared to similarly sized firms in the same industry that engaged in share repurchases, using share repurchases to manage earnings is associated with higher audit fees.

4.4.2. Propensity score matching

We also utilize a propensity score matching approach. In our first stage model, we use logistic regression to regress ASR on the set of control variables presented in Eq. (1). Consistent with our previous matching approach, we limit this analysis to firm-years that have engaged in share repurchases to help isolate the incremental impact of using share repurchases to manage earnings on audit fees.[13] We then match each firm-year observation where ASR takes the value of 1 to the control firm-year observation in its industry and during the same year that is most similar in terms of its propensity score. We then estimate Eq. (1).

The results are presented in Table 4. Panel A presents the results of the first-stage model. The results indicate that firm size, negative earnings, and retaining a Big 4 or second-tier auditor all affect the likelihood of engaging in an accretive stock repurchase.[14] The results from the second-stage model, presented in Panel B, reveal a positive and significant coefficient on ASR ($p < 0.01$). This indicates that our results continue to hold when using a propensity score matching approach.

4.4.3. Other supplemental analyses

We also investigate whether using accretive stock repurchases to manage earnings more frequently within a fiscal year has a greater impact on audit fees. To implement this test, we create two new variables,

Table 5
Accretive stock repurchases in multiple quarters.

Panel A: Audit fee model regression			
DV = FEES	Predicted sign	Coefficient	T-statistic
ASR_1Q	+	0.054	1.98**
ASR_OVER1Q	+	0.075	1.72**
REPUR	?	0.013	1.00
SIZE	+	0.486	73.19***
ROA	–	−0.362	−9.56***
ACCR	+	0.169	3.32***
CA	+	0.344	8.08***
DISCACC	+	0.204	4.73***
FOREIGN	+	0.484	14.24***
BSEGS	+	0.050	8.70***
LEV	+	0.194	7.35***
LOSS	+	0.063	4.57***
DECFYE	+	0.060	3.40***
ARLAG	+	0.002	9.94***
TENURE	?	−0.002	−1.49
ACQ	+	0.054	4.07***
HIGHLIT	+	−0.060	−1.02
GCO	+	0.020	0.70
AGE	?	0.002	3.21***
SPEC	+	0.048	3.41***
BIG	+	0.447	13.87***
SECTIER	+	0.257	7.67***
INTERCEPT	?	8.778	64.24***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		81.13%	
N		19,136	

Panel B: *F*-test of the difference in coefficients	
ASR_OVER1Q − ASR_1Q	0.021

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. ASR_1Q (ASR_OVER1Q) is an indicator variable that takes that value of 1 if during exactly one (more than one) quarter within a fiscal year a firm conducted an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents, and 0 otherwise. Refer to Table 1 for a detailed description of the other variables.

[10] See Kennedy (1992) page 223 for more information.

[11] We also examine the impact that ASR has on the adjusted R^2. Because such a high proportion of the variation in audit fees is explained by the natural logarithm of total assets, most of the other control variables individually add very little to the adjusted R^2. For example, removing the going-concern opinion indicator variable from the audit fee model results in a decrease in adjusted R^2 of only 0.01%. Likewise, individually removing discretionary accruals, auditor industry specialization, December fiscal year-end, and acquisitions from the audit fee model results in a decrease in adjusted R^2 of only 0.04%, 0.04%, 0.06%, and 0.03%, respectively. Similarly, removing ASR from the audit fee model results in a decrease in adjusted R^2 of 0.01%.

[12] We re-estimate Eq. (1) while omitting REPUR because all of the observations in our matching sample engaged in share repurchases.

[13] Because all of the observations in this analysis repurchased shares, we omit the variable REPUR in both the first and second stage models.

[14] The going-concern indicator variable is not included in the first-stage model because none of the ASR = 1 observations received a going-concern opinion. Since ASR is the dependent variable in the first-stage, there was no variation in the dependent variable based on going-concern opinions. GC is also omitted in the second-stage model because there were no observations with going-concern opinions in the propensity score matched sample.

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Table 6
Fourth quarter accretive stock repurchases.

Panel A: Audit fee model regression

DV = FEES	Predicted sign	Coefficient	T-statistic
ASRQ123	+	0.058	2.00**
ASRQ4	+	0.060	1.54*
REPUR	?	0.013	1.00
SIZE	+	0.486	73.17***
ROA	–	−0.362	−9.56***
ACCR	+	0.169	3.32***
CA	+	0.344	8.08***
DISCACC	+	0.204	4.73***
FOREIGN	+	0.484	14.24***
BSEGS	+	0.050	8.70***
LEV	+	0.194	7.35***
LOSS	+	0.063	4.57***
DECFYE	+	0.060	3.40***
ARLAG	+	0.002	9.93***
TENURE	?	−0.002	−1.49
ACQ	+	0.054	4.07***
HIGHLIT	+	−0.060	−1.02
GCO	+	0.020	0.70
AGE	?	0.002	3.21***
SPEC	+	0.048	3.41***
BIG	+	0.447	13.87***
SECTIER	+	0.257	7.67***
INTERCEPT	?	8.778	64.23***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		81.13%	
N		19,136	

Panel B: *F*-test of the difference in coefficients

ASRQ4 − ASRQ123	0.002

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. ASRQ4 (ASRQ123) is an indicator variable that takes the value of 1 if, during the fourth quarter (any of the first three quarters and not in the fourth quarter) of the fiscal year, a firm conducted an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents, and 0 otherwise. Refer to Table 1 for a detailed description of the other variables.

Table 7
Audit fee model regression—material weakness.

DV = FEES	Predicted sign	Coefficient	T-statistic
ASR	+	0.056	2.27**
REPUR	?	0.017	1.37
SIZE	+	0.486	73.96***
ROA	–	−0.367	−9.81***
ACCR	+	0.151	3.04***
CA	+	0.349	8.27***
DISCACC	+	0.206	4.83***
FOREIGN	+	0.464	13.82***
BSEGS	+	0.050	8.72***
LEV	+	0.191	7.33***
LOSS	+	0.054	4.00***
DECFYE	+	0.063	3.61***
ARLAG	+	0.002	8.64***
TENURE	?	−0.001	−1.19
ACQ	+	0.054	4.15***
HIGHLIT	+	−0.059	−0.99
GCO	+	0.001	0.04
AGE	?	0.002	3.13***
SPEC	+	0.050	3.63***
BIG	+	0.456	14.04***
SECTIER	+	0.260	7.70***
MATWEAK	+	0.295	14.47***
INTERCEPT	?	8.810	66.58***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		81.56%	
N		19,136	

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. MATWEAK is an indicator variable that takes the value of 1 if a firm-year is identified as having a material weakness in internal control by the Audit Analytics SOX 404 database, and 0 otherwise. Refer to Table 1 for a detailed description of each variable.

ASR_1Q and ASR_OVER1Q. ASR_1Q (ASR_OVER1Q) is an indicator variable that takes that value of 1 if during exactly one (more than one) quarter within a fiscal year a firm conducted an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents, and 0 otherwise. We then re-estimate Eq. (1) while including ASR_1Q and ASR_OVER1Q, and omitting ASR.

Our results are presented in Panel A of Table 5. The results reveal that both ASR_1Q and ASR_OVER1Q are positive and significant ($p = 0.02$ and $p = 0.04$, respectively, using a 1-tailed test). Turning to the coefficients, the results show that the coefficient of 0.075 on ASR_OVER1Q is over 35% larger than the coefficient of 0.054 on ASR_1Q. However, a test of the difference in these coefficients, presented in Panel B of Table 5, indicates that the coefficient on ASR_OVER1Q is not statistically different from the coefficient on ASR_1Q ($p = 0.32$). Therefore, we do not find evidence suggesting that using share repurchase to manage earnings more frequently within a fiscal year has a statistically significant incremental effect on audit fees. Given that only 2.4% of the firm-year observations in our sample use accretive stock repurchases to manage earnings, and only 0.5% use accretive stock repurchases to manage earnings more than once within a fiscal year, one possible explanation for this result is that there is insufficient statistical power to detect an incremental effect on audit fees due to the small number of firms that engage in accretive stock repurchase during more than one quarter within a fiscal year.

Next, we utilize an alternative approach to see whether managing earnings more frequently within a fiscal year has a greater impact on audit fees. First, we omit all observations where ASR = 0, leaving us with 456 observations. We then create a variable that measures the number of quarters within the fiscal year that a firm used an accretive stock repurchase to manage earnings and we include this variable in Eq. (1) while omitting ASR. We find (untabulated) that this variable is not statistically significant. Consistent with the results reported in the previous paragraph, this suggests that managing earnings using accretive stock repurchases more frequently within a fiscal year does not have a statistically significant incremental impact beyond using this technique once during the fiscal year.

We also examine whether using accretive stock repurchases to manage earnings during the fourth quarter of the fiscal year has a greater impact on audit fees compared to other quarters. During the fourth quarter, the use of accretive stock repurchases as an earnings management technique may be more salient to the auditor compared to other quarters because auditors only review, rather than audit, interim quarterly reports. We examine this possibility by creating two new variables, ASRQ4 and ASRQ123. ASRQ4 (ASRQ123) is an indicator variable that takes the value of 1 if, during the fourth quarter (any of the first three quarters and not in the fourth quarter) of the fiscal year, a firm conducted an accretive stock repurchase that allowed the firm to meet or beat the consensus analyst forecast of EPS by no more than five cents when the firm would have otherwise missed the EPS target by no more than five cents, and 0 otherwise.[15] We then re-estimate Eq. (1) while including ASRQ4 and ASRQ123, and omitting ASR.

[15] ASRQ4 and ASRQ123 are never both set equal to 1. If a firm used accretive stock repurchases to manage earnings in the fourth quarter as well as in another quarter during the fiscal year, then ASRQ4 takes the value of 1 and ASRQ123 takes the value of 0.

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Table 8
Audit fee model regression—litigation risk.

DV = FEES	Predicted sign	Coefficient	T-statistic
ASR	+	0.063	2.49***
REPUR	?	0.005	0.42
SIZE	+	0.495	65.46***
ROA	–	−0.342	−8.11***
ACCR	+	0.171	3.03***
CA	+	0.267	5.72***
DISCACC	+	0.231	4.96***
FOREIGN	+	0.495	13.61***
BSEGS	+	0.050	8.40***
LEV	+	0.260	8.12***
LOSS	+	0.060	4.14***
DECFYE	+	0.043	2.30**
ARLAG	+	0.002	7.94***
TENURE	?	−0.001	−1.10
ACQ	+	0.053	4.02***
HIGHLIT	+	−0.069	−1.09
GCO	+	0.044	1.39*
AGE	?	0.002	3.09***
SPEC	+	0.045	3.19***
BIG	+	0.426	11.55***
SECTIER	+	0.253	6.54***
SGROWTH	+	−0.008	−0.41
RETSTD	+	0.440	4.63***
RETURN	−	−0.008	−0.98
RETSKEW	−	−0.011	−2.46***
TURNOVER	?	−0.001	−3.05***
INTERCEPT	?	8.699	123.42***
Industry fixed effects		Included	
Year fixed effects		Included	
Adjusted R^2		82.56%	
N		16,855	

***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, using a 1-tailed test when there is a predicted direction and a 2-tailed test otherwise. Standard errors are clustered by firm and the continuous variables are winsorized at the 1st and 99th percentiles. We omit year and industry indicator variables for brevity. SGROWTH is percentage change in sales. RETSTD is the standard deviation of the firm's monthly stock returns over the 12 months preceding the fiscal year-end. RETURN is cumulative stock returns over the 12 months preceding the fiscal year-end. RETSKEW is the skewness of the firm's monthly stock returns over the 12 months preceding the fiscal year-end. TURNOVER is cumulative trading volume over the 12 months preceding the fiscal year-end scaled by shares outstanding at the beginning of the fiscal year. Refer to Table 1 for a detailed description of each variable.

The results, presented in Panel A of Table 6, suggest that both ASRQ123 and ASRQ4 are positively associated with earnings management conducted through the use of accretive stock repurchases ($p = 0.02$ and $p = 0.06$, respectively).[16] An inspection of the coefficients indicates that the coefficient of 0.060 on ASRQ4 is approximately equal to the coefficient of 0.058 on ASRQ123. A test of the difference in these coefficients, presented in Panel B of Table 6, confirms that the coefficients on ASRQ4 and ASRQ123 are not statistically different from each other ($p = 0.49$). Therefore, we do not find evidence that using share repurchases to manage earnings during the fourth quarter of the fiscal year has a greater impact on audit fees compared to the other three quarters.

We also examine whether the association between earnings management conducted through the use of accretive stock repurchases and audit fees is moderated by auditor industry specialization, auditor tenure, and profitability. We examine auditor industry specialization by estimating Eq. (1) while including the interaction ASR*SPEC. We find (untabulated) that the coefficient on the interaction is not statistically significant. We investigate auditor tenure and profitability by creating indicator variables, HIGH_TENURE and HIGH_ROA, which represent observations that are above the median value of TENURE and ROA, respectively. We then estimate Eq. (1) while including the interaction ASR*HIGH_TENURE and we find (untabulated) that the interaction is not statistically significant. Lastly, we estimate Eq. (1) while including the interaction ASR*HIGH_ROA and we find (untabulated) that the coefficient on this interaction is not statistically significant. Therefore, the results suggest that auditor industry specialization, auditor tenure, and profitability do not affect the association between earnings management conducted through the use of accretive stock repurchases and audit fees.

In addition, we examine whether our results are robust to controlling for material weaknesses in internal control over financial reporting. We use the Audit Analytics SOX 404 database to identify material weaknesses. We then create an indicator variable, MATWEAK, which takes the value of 1 if a firm-year is identified as having a material weakness in internal control by the Audit Analytics SOX 404 database, and 0 otherwise. We first examine the correlation between MATWEAK and ASR and find that these variables do not have a statistically significant correlation ($p = 0.53$). We then estimate Eq. (1) while including MATWEAK as a control variable. The results are presented in Table 7. The results show that MATWEAK has a positive and significant association with audit fees. Turning to our variable of interest, we find that ASR remains positive and significant even after controlling for material weaknesses in internal control.

Next, we investigate whether our results are robust to using an alternative measure to control for litigation risk. In Eq. (1), we control for litigation risk by using a variable that captures high litigation risk industries, based on Francis, Philbrick, and Schipper (1994). However, Kim and Skinner (2012) present an alternative measure of litigation risk. As noted by Kim and Skinner (2012), "The advantage of the [Francis et al. (1994)] measure is that it is available in virtually all research settings—other than industry membership, no data are required." Considering our relatively small sample of ASR observations, maintaining the largest possible sample size is critical. Nevertheless, we examine whether our results are robust to incorporating a measure of litigation risk presented in Kim and Skinner (2012). Kim and Skinner (2012) identify the natural log of total assets, sales growth, stock returns, stock return skewness, stock return standard deviation, and turnover as variables that affect litigation risk. To test this approach, we augment our regression with these variables. The results, presented in Table 8, continue to indicate a positive and significant coefficient on ASR. Therefore, our results are robust to controlling for this alternative measure of litigation risk.

We also examine whether auditors respond to earnings management through the use of accretive stock repurchases differently when a firm uses this earnings management technique in consecutive years. In our sample, there are a total of 456 observations where ASR = 1. Of these, 109 of the observations are instances in which ASR was equal to 1 in the prior year as well. To test whether auditors react differently to an accretive stock repurchase used to manage earnings when the firm also used this technique in the prior year, we create an indicator variable, CONS_ASR, which takes the value of 1 if ASR = 1 in the current year and in the prior year. We also create an indicator variable, NO_CONS_ASR, which takes the value of 1 if ASR = 1 in the current year and ASR = 0 in the prior year. We then include these two variables in our audit fee model and omit ASR. We find (untabulated) that NO_CONS_ASR is positive and significant; however, CONS_ASR is not statistically significant. We suspect this lack of statistical significance is due to there only being 109 observations with consecutive ASRs.

We also examine whether our results hold when using a changes approach. In implementing a changes approach, we follow prior studies and define the continuous variables as the difference from the prior year (e.g., Francis & Wang, 2005; Ghosh & Pawlewicz, 2009; Stanley, 2011). Following Ghosh and Pawlewicz (2009), we break each of the indicator variables out into two indicator variables that signify the direction of the change. For example, we break ASR out into UPASR and

[16] We believe that the slightly lower statistical significance of ASRQ4 compared to ASRQ123 is most likely attributable to there only being 139 observations where ASRQ4 = 1, while there are 317 observations where ASRQ123 = 1. The lower number of observations reduces statistical power and increases the difficulty of finding statistical significance.

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DOWNASR, where UPASR signifies a change from ASR = 0 in the prior year to ASR = 1 in the current year, and DOWNASR signifies a change from ASR = 1 in the prior year to ASR = 0 in the current year.

When estimating our audit fee model using a changes approach, we do not find (untabulated) a statistically significant coefficient on UPASR, indicating that there is not a statistically significant increase in audit fees when ASR switches from being 0 in the prior year to 1 in the current year. However, we believe that this result may be attributable to having less statistical power when using a changes approach. In our main analysis, there are 456 observations where ASR = 1; however, in the changes analysis we have only 284 observations where UPASR = 1. This loss is attributable to two factors: (1) a changes approach requires data from the prior year and (2) some firms have ASRs two or more years in a row, which means that there is not a change in ASR after the first year. Both of these factors reduce the number of observations where UPASR = 1, and thus, greatly reduces our statistical power.

5. Conclusion

This study investigates whether earnings management conducted through the use of accretive stock repurchases is associated with higher audit fees. Prior research finds that firms utilize share repurchases to manage earnings (e.g., Almeida et al., 2016; Bens et al., 2003; Cheng et al., 2015; Hribar et al., 2006; Myers et al., 2007); however, we are not aware of any study that examines whether auditors view this practice as affecting audit risk. We argue that auditors are likely to view the use of accretive stock repurchases to manage earnings as a signal of increased risk, leading to higher audit fees.

We test our hypothesis using a sample of 19,136 firm-year observations from the period 2005–2013. Our results reveal a positive and significant association between the use of accretive stock repurchases as an earnings management technique and audit fees. The results indicate that audit fees are 6.0% higher when accretive stock repurchases are used to manage earnings, which corresponds to an audit fee that is approximately $107,000 higher for the average firm-year observation in our sample. By showing that managing earnings through the use of accretive stock repurchases is associated with higher audit fees, this study contributes to the streams of prior research that investigate (1) the use of accretive stock repurchases as an earnings management technique, and (2) the impact of earnings management on auditor risk assessments.

A limitation of this study is that the archival methodology inherently restricts our ability to infer causality. That is, we can only observe an association between managing earnings through the use of accretive stock repurchases and audit fees. A potential avenue for future research could be to use an experimental approach to examine whether conducting earnings management though the use of accretive stock repurchases affects auditor risk assessments, since experimental studies are better equipped to make causal inferences. Future researchers could also consider conducting a survey of auditors to better understand how they view the use of accretive stock repurchases as an earnings management technique. Another limitation is that, while prior research suggests that auditors respond to higher audit risk and higher auditor business risk (including the risk of litigation against the auditor) by increasing audit fees, we are unable to determine the exact mechanism by which total audit fees increase in this study. That is, with our data, we cannot determine whether auditors respond to earnings management through the use of accretive stock repurchases by increasing the number of audit hours spent on the engagement, increasing the rate charged per audit hour, or a combination of both. Future researchers with access to proprietary audit firm data could consider addressing this research question.

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