

Earnings management with cash flow hedge accounting
By: Raluca Chiorean, Michael Kirschenheiter and Ram
Ramakrishnan

This Draft: August, 2020

Earnings management with cash flow hedge accounting

ABSTRACT

In this study we examine whether firms use cash flow hedge accounting to manage earnings by deferring derivatives gain/loss amounts to other comprehensive income (designating derivatives as cash flow hedges) or transferring derivatives gain/loss amounts from accumulated other comprehensive income to earnings (de-designating derivatives). We find evidence that firms use cash flow hedge accounting to increase earnings towards a target or take a big bath if reported earnings are below analyst forecasts. Further, we find that earnings management incentives are an important determinant in the decisions to designate derivatives as hedges and de-designate derivatives in cash flow hedges. Finally, our results indicate that the increased transparency of other comprehensive income components after the adoption of ASU 2011-05 significantly reduces earnings management with cash flow hedge accounting but does not eliminate it completely.

Keywords: Derivatives, cash flow hedge accounting (CFHA), accumulated other comprehensive income (AOCI), other comprehensive income, earnings management

JEL Classification M41

1. INTRODUCTION

Non-financial firms use cash flow hedges to reduce their exposure to variability in expected future cash flows arising from fluctuations in market risks. Under SFAS 133, firms recognize cash flow hedge derivatives at fair value and report unrealized gain/loss amounts on derivatives in other comprehensive income. These gain/loss amounts are later reclassified in earnings when the hedged item affects earnings or the hedging relation is discontinued (de-designated). Prior research shows that, in general, derivatives use reduces firms' market risk and the extent to which firms use discretionary accruals, can smooth earnings over time, and can also change the need to manage earnings (Barton 2001; Pincus and Rajgopal 2002; Nan 2008). However, to date we have little empirical evidence on whether firms use hedge accounting to manage earnings (Nan 2008; Vasvari 2012). This was also on regulators' minds when hedge accounting rules were established, as the FASB also expressed concern over the possibility to use hedge accounting "to achieve a desired accounting result" (FASB 1998). Our research question is important as 81 billion dollars related to cash flow hedges flow through comprehensive income annually (Campbell et al. 2019) and their use may increase as the FASB recently simplified the application of hedge accounting (FASB 2017). In this study, we examine whether firms use cash flow hedge accounting (CFHA) to manage earnings by selectively designating derivatives as cash flow hedges or de-designating derivatives in cash flow hedges.

First, derivatives users can manage reported earnings using CFHA by selectively designating derivatives as cash flow hedges retroactively, after observing the firm's performance. This allows them to opportunistically exclude derivatives gains and losses from earnings and to recognize them in other comprehensive income (FASB 1998). To protect against earnings

management with the designation decision, SFAS 133 requires managers to apply CFHA prospectively by first documenting the hedge, hedged item, and the method to test effectiveness. Second, firms can manage earnings with CFHA by opportunistically de-designating derivatives in cash flow hedges to time the recognition of unrealized gain/loss amounts previously deferred to OCI. To protect against earnings management with the de-designation decision, SFAS 133 requires firms to continue to hold unrealized cash flow hedge gain/loss amounts in AOCI until the forecasted item affects earnings, unless the derivatives are de-designated for one of two reasons: (i) the counterparty in the derivatives transaction cannot honor the contract or (ii) it is probable that the original forecasted transaction will not occur.

While regulators and auditors play a role in enforcing these rules, anecdotal and survey evidence suggest that not all firms comply with hedge accounting rules and that retroactive designation is not uncommon. For example, Oakley Inc., Forestar Petroleum Corp., and Federal Agricultural Mortgage Corp. (among others) restated their financial statements because the formal documentation provided for cash flow hedges for the restated period was insufficient. Further, in a survey, Harris and Rajgopal (2018) report one CFO saying “firms bought a derivative position first to ensure some reporting or economic objective and then ex post looked around in the business to find a set of opposite cash flows to satisfy the hedge effectiveness test.” Finally, the Office of Federal Housing Enterprise Oversight (OFHEO) charged Fannie Mae with not following generally accepted accounting practices in their accounting for financial derivatives contracts. According to the OFHEO, “these deviations from standard accounting rules allowed Fannie Mae *to reduce volatility in reported earnings*, present investors with an artificial picture of steadily growing

profits, and, in at least one case, *to meet financial performance targets* that triggered the payment of bonuses to company executives” (emphasis added) (Jickling 2005).

As an earnings management strategy, managing earnings with CFHA can be particularly appealing to managers for two reasons. First, cash flow hedges are a significant component of the economy (Campbell et al. 2019) and, despite their widespread use, investors and analysts struggle to process derivatives-related information (Campbell et al. 2015; Chang et al. 2016). Second, even though conceptually one may argue that earnings and OCI do not differ (e.g., neither IFRS nor GAAP have identified the attributes that differentiate them), investors may view them as different (Hirst and Hopkins 1998; Maines and McDaniel 2000; Barton et al. 2010). Overall the literature suggests that including gains/losses in income or OCI can affect investors’ expectation of future cash flows, providing managers with incentives to use CFHA to move gain/loss amounts between net income and OCI to increase reported earnings to meet benchmarks or even take a big bath. Appendix D provides a mathematical examination of the impact of CFHA (both designation and de-designation) on reported earnings.

To address our research question, we hand-collect cash flow hedge gain/loss amounts from annual reports. Specifically, we collect the unrealized derivatives gain/loss amounts deferred to OCI, the derivatives gain/loss amounts transferred from OCI to earnings, and record whether firms de-designate derivatives in cash flow hedges. Using this hand-collected data, we can test whether firms use both the designation (gain/loss amounts deferred to OCI) and de-designation (gain/loss amounts transferred from OCI to earnings) decisions to manage earnings to meet or beat analyst forecasts. We use analyst forecasts as our earnings benchmark, as CFO surveys, the popular press, and accounting literature suggest that analyst forecasts are a key earnings threshold (Graham et al.

2005; McVay, Nagar and Tang 2006). Further, managers have strong incentives to meet this earnings benchmark as firms are rewarded for meeting/beating analyst forecasts (Bartov et al. 2002) and experience negative market consequences for missing analyst forecasts (Skinner and Sloan 2002). Finally, Dechow et al. (2010) argue that the evidence that meeting/beating analyst forecasts represents earnings management is more persuasive than for other earnings benchmarks.

In our main tests, we examine whether earnings management (EM) incentives related to meeting or beating analyst forecasts (to meet earnings targets or to take a big bath) are associated with CFHA gain/loss amounts, as well as the decisions to use CFHA (designation) or to stop using CFHA (de-designation). We find that firms that do not meet analyst forecasts before CFHA defer losses to OCI and transfer gains from AOCI to earnings, increasing reported income. These firms are also more likely to use cash flow hedge accounting and de-designate derivatives during the period. However, when firms do not meet analyst forecasts with reported income, they defer gains to OCI and transfer losses from AOCI to income, taking a big bath. These firms are also more likely to de-designate derivatives in cash flow hedges. Overall, our results are consistent with firms using CFHA to manage earnings.

This study makes several contributions to the literature. First, we add to the derivatives literature. Prior studies find that hedging with derivatives reduces earnings volatility and is a substitute for managing earnings with accruals (Barton 2001; Pincus and Rajgopal 2002; Nan 2008). We add to this literature and show that, given that a firm uses derivatives, CFHA is an accounting tool that can be used to manipulate reported earnings. We also respond to Campbell et al.'s (2019) call for more research on factors that affect firms' decision to use hedge accounting

by investigating the association between EM and CFHA. Second, we add to the EM literature by showing that transferring income between OCI and net income can also be used as an EM tool.

Third, we contribute to the literature on OCI by examining the association between a component of OCI (cash flow hedge gains/losses) and EM. While prior literature documents an association between realized gains/losses on available for sale securities (AFS) and banks' incentives to manage earnings (Moyer 1990; Scholes et al. 1990; Beatty et al. 1995; Barth et al. 2017), these studies do not focus on OCI components and accounting-based EM as realizing gains/losses on AFS securities is a form of real earnings management. We also contribute to the literature on OCI by showing that firms use both gains/losses deferred to OCI and gains/losses transferred from OCI to earnings to manage earnings. Finally, we add to this literature by providing evidence that changes in the presentation and transparency of OCI components after the adoption of ASU 2011-05 reduce the extent to which firms manage earnings using the cash flow hedge component of OCI, but do not eliminate EM entirely.

These findings should be of interest to investors and regulators alike. Our analysis provides evidence of an opportunity to manage earnings using CFHA, which may go undetected due to the economic and reporting complexity of derivatives. Given the debate over what items should be included in OCI and the concern that firms may be able to manipulate earnings through arbitrary exclusions of certain gains and losses from earnings, our investigation should be of interest to regulators as well. We find that firms use hedge accounting opportunistically to manipulate reported earnings. While SFAS 133 requires firms to document the hedge at inception, our results add to the anecdotal and survey evidence that it is likely that some firms designate derivatives retroactively, after observing firms' performance. Finally, our results also indicate that ASU 2011-

05 was successful in increasing the transparency of OCI components as firms reduce EM using the cash flow hedge component of OCI after its adoption.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 Related literature

Prior studies identify a number of ways that firms engage in EM. A well-documented method is accruals management (Healy 1985; Jones 1991; McNichols and Wilson 1988; among others). Accruals management consists of managers using earnings from future periods to increase current income, for example by decreasing estimated bad debt expense in a period with low earnings. A second type of EM is real activities management. Some examples of real activities management are overproduction to decrease cost of goods sold, price discounts to increase sales (Roychowdhury 2006), or realizing gain/loss amounts for AFS securities (Barth et al. 2017). Managers can also use classification shifting - the misclassification of items within the income statement - to manage core earnings. McVay (2006) finds that managers shift core expenses to special items to overstate core earnings and use classification shifting as a tool to meet analyst forecasts. We show that firms can use CFHA to manage reported earnings by deferring gains/losses to OCI or transferring gains/losses from AOCI to earnings.

Non-financial firms use derivatives in their risk management program to shield earnings and cash flows from changes in market risks. Theory suggests that because derivatives use reduces firms' exposure to market risks, it can smooth earnings over time and can also change firms' ability and need to manage earnings (Nan 2008). The empirical literature provides results consistent with theory. In a sample of Fortune 500 firms, Barton (2001) finds a negative association between the use of derivatives and the magnitude of discretionary accruals, a proxy for EM. He argues that

managers want to maintain a given level of earnings volatility and that smoothing earnings using derivatives reducing firms' reliance on accruals management. In a related study, Pincus and Rajgopal (2002) find that firms first determine the extent of derivatives used to hedge oil price risk, and then trade off abnormal accruals and hedging with derivatives to smooth earnings.

However, the adoption of SFAS 133 changed the extent to which firms use derivatives for smoothing, as measuring non-designated derivatives at fair value may increase earnings volatility. For example, Choi et al. (2015) find that the substitution relation between hedging and discretionary accruals is significantly reduced after the adoption of SFAS 133 and Kilic et al. (2013) find that the fair value measurement of derivatives after the adoption of SFAS 133 reduces banks' ability to smooth income with derivatives and increases their reliance on loan loss provisions to smooth earnings. We argue that CFHA is an accounting tool firms can also use to manage reported earnings.

2.2 Hypotheses development

Firms use derivatives to reduce their exposure to variability in expected future cash flows attributable to foreign exchange, interest rate, or commodity price risks. SFAS 133 requires firms to recognize the change in fair value of derivatives as gains/losses in the income statement each period, unless the derivatives are designated as cash flow hedges. Gains/losses on cash flow hedge derivatives are initially deferred to OCI and subsequently transferred to earnings when the hedged item impacts earnings (see Appendix B for more details on accounting for derivatives and hedge accounting). To qualify for hedge accounting, firms have to formally document the hedging relationship, establish how the effectiveness of the hedge will be assessed, and document both at

inception and on an ongoing basis that the hedge is highly effective in offsetting cash flows attributable to the hedged risk (FASB 1998).

SFAS 133 also requires firms to tie derivatives designated as cash flow hedges to a specific exposure – an existing asset or liability (e.g., future interest rate payments) or a forecasted transaction (e.g., forecasted commodity purchase, forecasted sale). As such, derivatives gain/loss amounts tie into firms' performance and should be negatively related to current and future profitability. For example, the unrealized CFHA amounts *accumulated* in AOCI are negatively related to firms' future profitability (Campbell 2015). Further, unrealized CFHA gain/loss amounts *deferred to OCI during the period* tie into both current and future profitability, as part of the deferred gains/losses are realized during the current period (most derivatives mature in less than one year) and part are realized in future periods. Finally, derivatives gain/loss amounts transferred from AOCI to income tie into current profitability, as the hedged items are current period transactions that often impact revenues or expenses.

In short, absent EM, CFHA gain/loss amounts will depend on the economic conditions of the firm. Specifically, we expect firms with good news in operations to have hedging derivatives in a loss position and firms with bad news in operations, to have hedging derivatives in a gain position. Take the example of an airline company hedging forecasted jet fuel prices with futures. If there is a decrease in fuel prices during the period (good news), firms would incur losses on fuel futures and would transfer losses from OCI to earnings to offset the lower purchasing price in the current period. Further, this same firm would defer losses to OCI related to fuel futures hedging forecasted purchases.

However, in the presence of EM, we expect firms with income decreasing (increasing) incentives to use the designation and de-designation of cash flow hedge derivatives to decrease (increase) reported earnings. For example, firms that do not meet analyst forecasts before CFHA can increase reported earnings by selectively designating derivatives with unrealized losses as accounting hedges. By doing so, the unrealized losses are recognized as a component of OCI, not reported earnings. Further, firms that do not meet analyst forecasts with reported earnings may defer gains to AOCI, further decreasing reported earnings and taking a big bath. These gains can be used in future periods to increase reported earnings. To deter firms from using hedge designation opportunistically, the FASB set strict documentation rules for hedging and “decided that concurrent designation and documentation of a hedge is critical; without it, an entity could retroactively identify a hedged item, a hedged transaction, or a method of measuring effectiveness to achieve a desired accounting result” (FASB 1999). Managing earnings with CFHA requires managers to wait until the end of the period to observe the performance of derivatives, selectively designate derivatives as accounting hedges, and apply hedge accounting retroactively. Even though this practice does not comply with the documentation rules under SFAS 133, anecdotal and survey evidence suggest that firms may sometimes apply hedge accounting retroactively (Harris and Rajgopal 2018). This discussion leads to our first set of hypotheses:

H1a: Earnings management incentives are related to the decision to designate derivatives as cash flow hedges.

H1b: Earnings management incentives are related to the amount of derivatives gain/loss amounts deferred to OCI during the period.

Managers may also selectively de-designate derivatives in cash flow hedges to recognize the accumulated unrealized gains and losses on derivatives in current earnings (Appendix C provides a few examples of de-designation). De-designation occurs when firms voluntarily discontinue cash flow hedge accounting (CFHA) or when the derivatives no longer meet the requirements for CFHA. For example, firms should de-designate if the forecasted transaction is no longer probable, if they wish to change any of the critical terms of the hedging relation, if the counter party declares bankruptcy, or if there are other indications that one of the parties will not comply with the conditions of the contracted transaction. If managers determine that the forecasted transaction is no longer probable, the hedge is de-designated and the unrealized derivatives gain/loss amounts accumulated in AOCI are transferred immediately to earnings. As a result, firms that do not meet analyst forecasts before CFHA may get closer to their earnings goal by de-designating derivatives with accumulated gains and transferring gains from AOCI to earnings. This leads to our second set of hypotheses:

H2a: Firms with earnings management incentives and the opportunity to manage earnings are more likely to de-designate derivatives in cash flow hedges.

H2b: Earnings management incentives are related to the amount of derivatives gain/loss amounts transferred from AOCI to earnings during the period.

Finally, ASU 2011-05, effective for fiscal years starting Dec 15, 2011 increases the transparency of reported OCI items by requiring firms (i) to report CI in a continuous statement of CI or in a separate OCI statement immediately following the income statement and (ii) to report amounts reclassified from OCI to earnings on the face of the financial statements. Prior to 2011,

some firms reported OCI in the statement of changes in equity. However, empirical evidence suggests that the presentation of OCI items impacts users' judgments. For example, Lee et al. (2006) show that insurers with a tendency to manage earnings through realized securities' gains and losses are more likely to report comprehensive income in a statement of equity. Further, Hirst and Hopkins (1998) show that presenting OCI in a statement of comprehensive income enhances the transparency of a company's EM and allows analysts to better assess firm performance in the presence of EM. The increased transparency and prominence of OCI components, including the cash flow hedge component, after the adoption of ASU 2011-05 may reduce EM using CFHA. Based on this discussion, our third hypothesis is:

H3: Firms are less likely to manage reported earnings with CFHA after the adoption of ASU 2011-05.

3. RESEARCH DESIGN

Prior studies show that firms manage earnings by increasing earnings towards a target or taking a big bath if reported earnings are below earnings targets. We focus on analyst consensus forecasts as our earnings target and examine whether CFHA gain/loss amounts deferred to OCI or transferred from AOCI to income are related to incentives to meet analyst forecasts. Similarly, we examine whether the decisions to designate and de-designate derivatives in cash flow hedges are related to incentives to meet analyst forecasts. We classify firms as having income-increasing incentives if they do not meet analyst forecasts before CFHA (TARGET). These firms can use CFHA to increase reported earnings towards their earnings target. Further, we classify firms as having big bath incentives if they report earnings lower than the consensus analyst forecasts

(BIGBATH). In this case managers cannot meet their target, so they take a big hit to reported income and add to the cookie jar for the future.

To examine whether EM incentives are related to the decision to designate derivatives as cash flow hedges (H1), we estimate the following models:

$$\begin{aligned}
 CFHA / OCI_D = & \alpha_1 + \alpha_2 TARGET + \alpha_3 BIGBATH + \alpha_4 LEADPI + \alpha_5 IR + \alpha_6 EXP + \\
 & \alpha_7 EVOL + \alpha_8 CVOL + \alpha_9 CETR + \alpha_{10} ECSENS + \alpha_{11} ALTZ + \\
 & \alpha_{12} LEV + \alpha_{13} MA + \alpha_{14} BIGN + \alpha_{15} FOL + \alpha_{16} BTM + \alpha_{17} SIZE + \\
 & \alpha_{18} ROA + \alpha_{19} VIX + \alpha_{20} LIBOR + \sum_K \beta_K IND + \sum_T \beta_T YR + \varepsilon
 \end{aligned}
 \tag{Eq. (1)}$$

, where CFHA equals one for firms that use CFHA, and zero for firms that use derivatives, but do not designate them as cash flow hedges. OCI_D is defined as CFHA gain/loss amounts deferred to OCI during the current period. When OCI_D is positive (negative), firms defer gains (losses) to OCI, decreasing (increasing) reported earnings. Our variables of interest, TARGET and BIGBATH, capture EM incentives. TARGET equals one for firms that do not meet analyst forecasts before CFHA, and zero otherwise. BIGBATH equals one for firms that do not meet analyst forecasts with reported earnings, and zero otherwise.

When CHFA is the dependent variable, we expect the coefficients for EM incentives to be positive if firms use the designation of derivatives to manage earnings (H1a). Consistent with H1b, we expect the coefficient for TARGET to be negative and significant, as firms that do not meet analyst forecasts before CFHA have incentives to use OCI_D to increase reported earnings by deferring losses to OCI (OCI_D is negative). Further, we expect the coefficient for BIGBATH to be positive and significant, as firms with BIGBATH incentives can defer gains to OCI and use these gains to increase reported earnings in future periods. We include next period profits (*LEAD_PI*) as a control variable, as prior research suggests unrealized derivatives gains are

negatively related to next period profits (Campbell, 2015). IR is a binary variable equal one if firms use interest rates derivatives. We expect the coefficient for this variable to be positive if firms are more likely to apply hedge accounting for interest rate derivatives. Hedge accounting experience (HA_EXP) is equal to the number of years the firm had derivatives designated as accounting hedges. We expect firms more experienced with hedge accounting to be more likely to use CFHA in the current period.

We next include a set of control variables that prior research identifies as economic determinants of hedging with derivatives: earnings and cash flow volatility (EVOL, CVOL), tax rate (CETR), managerial compensation (ECSSENS), bankruptcy risk (ALTZ), leverage (LEV), and mergers and acquisitions (MA) (Zhang, 2009; Cheng et al. 2016). Auditor size (BIGN) and analyst following (FOL) control for firms' external monitoring environment as firms with better monitoring may be less likely to manage earnings. Next, we include controls for growth opportunities (*BTM*), as growth firms have greater incentives to meet earnings benchmarks (Skinner and Sloan 2002), size (*SIZE*) to control for political costs (Watts and Zimmerman 1978) and economies of scale in using hedge accounting, and firm performance (*ROA*). Finally, Barth et al. (2017) argue that macroeconomic factors can affect the propensity to hedge, as well as the volatility in market rates. Following this literature, we include VIX, the implied volatility of S&P 500 index options and LIBOR, the difference between the London Interbank Offer Rate and overnight indexed swap rates.

Next, we examine the impact of EM incentives on the decision to de-designate derivatives in cash flow hedges (H2). De-designation can be used to manage earnings when firms selectively de-designate derivatives in cash flow hedges to recognize unrealized gain/losses and meet

reporting objectives. To test whether de-designation is related to EM incentives, we use the following logit model:

$$\begin{aligned}
 DED = & \gamma_1 + \gamma_2 SUSP_TARGET + \gamma_3 SUSP_BIGBATH + \gamma_4 SUSP_SD + \\
 & \gamma_5 LAG_DED + \gamma_6 EXP + \gamma_7 SIZE + \gamma_8 BIGN + \gamma_9 FOL + \gamma_{10} EVOL + \gamma_{11} CVOL + \\
 & \gamma_{12} MA + \gamma_{13} LEV + \gamma_{14} BTM + \gamma_{15} ROA + \gamma_{16} IND_GROWTH + \gamma_{17} ALTZ + \\
 & \gamma_{18} LEHMAN + \gamma_{19} VIX + \gamma_{20} LIBOR + \gamma_{21} UNEMP + \sum_K \beta_K IND + \sum_T \beta_T YR + \varepsilon
 \end{aligned}
 \tag{Eq. (2)}$$

, where DED is an indicator variable equal to one if firms de-designate derivatives during the fiscal year, and zero otherwise. We modify our variables of interest slightly to include the incentive, as well as the opportunity to manage earnings with de-designation. SUSP_TARGET is a binary variable equal to one if firms do not meet analyst forecast before CFHA (incentive) and have unrealized gains in AOCI at the beginning of the period (opportunity). SUSP_BIGBATH is a binary variable equal to one if firms do not meet analyst forecast before CFHA (incentive) and have unrealized losses in AOCI at the beginning of the period (opportunity). SUSP_SD is a binary variable equal to one if firms meet analyst forecast before CFHA (incentive) and have unrealized losses in AOCI at the beginning of the period (opportunity). Consistent with H2a, if de-designation is used as an EM tool, we expect a positive association between our indicators of suspect EM firms and DED. Since we do not expect unrealized gains/losses in AOCI to be related to the decision to de-designate, we can use this amount to more precisely define our EM variables. However, unrealized gains/losses in AOCI do not provide an opportunity to manage earnings with the designation decision (CFHA and OCI_D) and may be mechanically related to OCI_T (firms with more unrealized losses will transfer losses from OCI to earnings).

There are other factors that may impact the decision to de-designate. For example, de-designation can indicate management's inexperience or inefficiency with using derivatives.

Therefore, we first control for firms' experience with de-designation (LAG_DED), hedge accounting (EXP), and firm size (SIZE). If firms de-designate hedging derivatives due to inexperience with hedge documentation requirements or effectiveness tests, we expect a negative relation between HA_EXP and SIZE and de-designation. However, as firms get more experience using CFHA or are larger and have more resources to invest in the risk management program, they may find more ways to manipulate earnings with CFHA. In that case, we expect a positive association between HA_EXP and SIZE and de-designation. As both EM and ineffective use of derivatives should be dampened by good governance, we control for audit quality (BIGN) and analyst following (FOL). Next, we control for earnings and cash flow volatility (EVOL, CVOL) as more volatility in operations may result in higher de-designation rates. We expect MA to be associated with de-designation as the acquired firm may have a different risk management policy than the parent company, and the merger or acquisition may prompt changes in CFHA. As before, we include general controls for leverage (LEV), growth opportunities (BTM), and firm profitability (ROA).

Finally, firms should de-designate if the forecasted transaction is no longer probable (e.g. due to changes in business environment, firm default), if the counter party declares bankruptcy, or if there are other indications that one of the parties will not comply with the conditions of the contracted transaction. Therefore, we include controls for industry sales growth (IND_GROWTH), bankruptcy risk (ALTZ), and a dummy variable for the Lehman Brothers' bankruptcy (LEHMAN). Further, we include VIX and LIBOR to control for macroeconomic factors that may impact the probability that the counterparty will declare bankruptcy. These macroeconomic factors are also related to firms' operations or financing plans and may be related to the decision to de-designate.

Finally, we examine the association between EM incentives and the amount of gains/losses deferred from AOCI to earnings (OCI_T) (H2b). To do so, we estimate the following OLS model:

$$\begin{aligned}
 OCI_T = & \gamma_1 + \gamma_2 TARGET + \gamma_3 BIGBATH + \gamma_4 LAG_AOCI + \gamma_5 EXP + \gamma_6 SIZE + \\
 & \gamma_7 BIGN + \gamma_8 FOL + \gamma_9 EVOL + \gamma_{10} CVOL + \gamma_{11} MA + \gamma_{12} LEV + \gamma_{13} BTM + \\
 & \gamma_{14} ROA + \gamma_{15} IND_GROWTH + \gamma_{16} ALTZ + \gamma_{17} LEHMAN + \gamma_{18} VIX + \\
 & \gamma_{19} LIBOR + \gamma_{22} UNEMP + \sum_K \beta_K IND + \sum_T \beta_T YR + \varepsilon
 \end{aligned}
 \tag{Eq. (3)}$$

,where OCI_T is defined as CFHA gain/loss amounts transferred from AOCI to income. When OCI_T is positive (negative), firms transfer gains (losses) from AOCI to income, increasing (decreasing) reported earnings. In the presence of EM, we expect the coefficient for TARGET, γ_2 to be positive and significant, as firms that do not meet benchmarks before CFHA have incentives to use OCI_T to increase reported earnings using OCI_T. Further, in the presence of EM, we expect the coefficient for BIGBATH, γ_3 , to be negative and significant, as firms that do not meet benchmarks with reported earnings have incentives to use OCI_T to further decrease reported earnings and create reserves for future periods. In the absence of EM, we expect firms with bad news in operations (TARGET and BIGBATH) to have derivatives in a gain position and to transfer gains to OCI (OCI_T is positive). Control variables are defined as before.

Finally, H3 examines whether firms are less likely to use CFHA to manage earnings after the adoption of ASU 2011-05. To examine this research question, we modify Eq. (1) by including a new variable, ASU, equal to one for firm-year observations after the adoption of ASU 2011-05, and zero otherwise. We interact this variable with our EM incentives (TARGET, and BIGBATH) to examine how these incentives change after the adoption of the ASU. If the adoption of ASU 2011-05 decreases EM incentives, we expect the coefficient on the interaction term TARGET*ASU to be positive and BIGBATH*ASU to be negative.

4. RESULTS

4.1 Data and sample selection

For this study, we build a panel data set of derivatives users, identified by hand-collecting derivatives and hedging data from 10-K reports. We begin with firms in the Compustat database in fiscal year 2001 and exclude (i) financial and regulated firms¹ and (ii) firms with missing data to calculate the variables of interest. Given the high cost of hand-collecting data, we restrict the sample to 1,000 non-financial firms with the largest market capitalization as of 2001, as large firms are more likely to use derivatives. Out of the 1,000 large non-financial firms, 823 firms use derivatives in at least one fiscal year between 2001 and 2013. Out of this sample of derivatives users we keep firm-year observations with data available to calculate our variables of interest. Our final sample thus consists of 5,556 firm year observations and 703 firms. Out of this sample, 2,452 firm-year observations (387 unique firms) use CFHA.

We use a second sample of firms for our de-designation test. As before, we begin with firms in the Compustat database in fiscal year 2001 and exclude (i) financial and regulated firms and (ii) firms with missing data to calculate the variables of interest. We use DirectEDGAR to identify firms that use keywords related to de-designation in 10Ks filed with the SEC between 2001 and 2015 (De-designate(ion) ; dedesignate(ion); Discontinue(d) within 10 words of hedge (or derivative)). We manually read the disclosures for firms with de-designation keywords to

¹ We exclude financial and regulated firms as their financial reporting requirements are different from those of other companies and financial firms are often traders of derivatives rather than end-users (Chang et al. 2016).

confirm the firm de-designated during the period. Our final de-designation sample consists of 18,741 firm year observations, of which 458 de-designated derivatives during the period.

Table 1, Panel A presents the temporal distribution of CFHA users by type of risk hedged. Consistent with prior studies, foreign exchange derivatives are the most used class of derivatives (73.46%), followed by interest rate derivatives (54.23%), and commodity price derivatives (24.01%) (Bodnar et al. 1996). Table 1, Panel B reports the industry distribution of CFHA users. Overall, firms from the business equipment and manufacturing industries comprise the largest proportion of CFHA users. To mitigate concerns related to industry and time, we control for industry and year fixed effects throughout our analyses.

Table 1, Panel C reports descriptive statistics separately for CFHA and non-CFHA users for the main and control variables used in this study. Derivatives gain/loss amounts deferred to OCI (*OCI_D*) and transferred from AOCI to earnings (*OCI_T*) are hand collected from form 10-K reports. On average, firms defer to OCI derivatives losses of 0.1% of sales and transfer from AOCI to earnings derivatives losses of 0.075% of sales (*OCI_T* and *OCI_D* are multiplied by 100 in the tables). Our control variables are obtained from Compustat and IBES and are defined in Appendix A. Since the medians of *OCI_D* and *OCI_T* are close to 0, we replicate our main results at various levels of truncation (0.01, 0.05, 0.1) to alleviate concerns that the results are driven by a few outliers. CFHA users in our sample have a positive forecast error of 0.089% of sales. On average, firms increase reported earnings with CFHA as the forecast error before CFHA (AFE) is only 0.064% of sales. In our sample, 12.43% of the observations fall after the adoption of ASU 2011-05 and, on average, firms have 3.092 years of hedge accounting experience (4.769 for CFHA users). Panel C also shows that sample firms tend to be large (mean SIZE=8.514), with high

profitability (mean ROA=0.078). The sign and significance of control variables are generally consistent with prior research. All continuous variables winsorized at the 1st and 99th percentile. Further, OCI_T, OCI_D, LAG_AOCI, FE, and AFE are multiplied by 100 to reduce the number of leading zeros.

Table 2 presents descriptive statistics for our de-designation sample. Table 2, Panel A presents the temporal distribution of CFHA users separately for firms that de-designate during the period and those that do not. 2.511% of the sample de-designate during the period. Table 2, Panel B presents the reasons for de-designation. The main reason for de-designation is that the forecasted transaction is no longer probable (or no longer probable within 2 months of the originally scheduled transaction). In general, the forecasted transaction is no longer probable because of a change in the firm's business environment or risk exposure, due to business divestitures, reduction in anticipated debt issuance, asset sale, reduction in expected future sale, or overhedging. Another reason for discontinuing hedge accounting is that the hedge is no longer effective, so it does not meet the highly effective criterion under SFAS 133. A number of firms discontinue hedge accounting altogether, usually citing high compliance and documentation costs to maintain it. Some firms de-designate due to counterparty bankruptcy (Lehman Brothers) or credit deterioration of the counterparty. Other reasons provided are termination of derivatives contract, firm default, natural disasters. About 25% of the firms that de-designate do not provide a reason.

Table 2, Panel C provides descriptive statistics for the DED sample. 15.5% of the firms have incentives and opportunity to increase earnings towards a target, 21.8% and incentive and opportunity to take a big bath, and 35.1% of the firms have incentive and opportunity to smooth earnings down. The other 27.6% of the firms serve as the control firms. These are firms that meet

analyst forecast before cash flow hedge accounting and have accumulated gains at the beginning of the year. Therefore, the controls firms have neither the incentive nor the opportunity to manage earnings with CFHA. Table 2, Panel D reports de-designation rates by EM incentive. Relative to our control firms (firms that meet analyst forecast before CFHA and have accumulated unrealized gains at the beginning of the period), firms with both the incentive and opportunity to manage earnings are more likely to de-designate derivatives in cash flow hedges.

4.2 Relation between CFHA designation and EM incentives (H1)

Table 3 presents multivariate evidence supporting H1. Table 3, panel A reports coefficient estimates for the CFHA model in Eq. (1). The positive and significant coefficient on TARGET (0.773) suggests that firms that do not meet analyst forecasts before CFHA may use the designation of derivatives as a tool to increase earnings towards their target. The negative and significant coefficient on BIGBATH (-0.621) suggests that firms may use the de-designation of derivatives as a tool to take a big bath when reported earnings fall below targets. Hedging with derivatives is associated with lower earnings volatility (EVOL) and lower sensitivity of executive compensation to firm value (ECSENS). Further, hedging firms tend to be larger (SIZE) and have more experience with CFHA (EXP).

Table 3, panel B presents estimates of Eq. (1), where the dependent variable is OCI_D. Consistent with hypothesis H1b, the coefficient for TARGET is negative and significant (-0.869), suggesting that firms with income increasing incentives increase reported earnings by designating derivatives in a loss position as cash flow hedges, thus deferring losses to OCI. The coefficient on BIGBATH is positive and significant (0.576), indicating that firms that do not meet earnings benchmarks with reported earnings may use CFHA to further decrease reported earnings and take

a big bath. Further, consistent with prior research, OCI_D is negatively associated with next period profits (Campbell 2015). Finally, OCI_D is negatively associated with leverage (LEV). Overall, table 3 presents results consistent with H1 and suggests that firms may use derivatives de-designation to manage reported earnings.

4.3 Relation between de-designation and EM incentives (H2)

Table 4 presents multivariate evidence supporting H2. In Table 4, panel A we estimate a logit model with de-designation as the dependent variable (Eq. [2]). As in our first set of analysis, we include industry fixed effects and standard errors are clustered by firm. We exclude year fixed effects due to the LEHMAN variable. Consistent with H2a and our univariate tests in Table 2, Panel D, all three of our EM variables are positively associated with DED. This indicates that firms that have both the incentive and opportunity to manage earnings using CFHA are more likely to de-designate than firms without an incentive and opportunity (firms that meet analyst forecast before CFHA and have accumulated gains at the beginning of the period). We also find that firms that have de-designated in the past and firms that have experience with CFHA (EXP) are also more likely to de-designate derivatives. Highly leverage (LEV) as well as lower profitability are related to de-designation. As expected, the coefficient on EVOL is positive and significant, suggesting that firms with high volatility in operations are more likely to de-designate. The negative association between industry sales growth (IND_GROWTH) and DED suggests that firms are more likely to de-designate when the business environment changes. Finally, firms are more likely to de-designate when the risk of bankruptcy is high (ALTZ) and when the counterparty declares bankruptcy (LEHMAN).

Table 2, Panel B provides a variety of reasons for de-designation. One may argue that if a firm de-designates due to firm default, counterparty bankruptcy, or due to natural disasters, de-designation is less likely to be related to earnings management. In the second column of Table 4, Panel A we re-estimate Eq. [2] with a modified DED variable, which excludes de-designation due to firm default, counterparty bankruptcy, or natural disasters. The results are similar to our main test.

Table 4, Panel B presents the coefficient estimates of Eq. (4), where the dependent variable is OCI_T. The coefficient for TARGET is positive and significant (0.204), indicating that firms that do not meet earnings targets before CFHA transfer a higher amount from AOCI to earnings than firms that meet earnings benchmarks before CFHA. Further, the coefficient for BIGBATH is negative and significant, suggesting that firms with big bath incentives further reduce reported earnings with CFHA and transfer losses from AOCI to earnings. Overall, the results in Table 4 are consistent with H2 and suggest that firms may use derivatives de-designation to opportunistically increase or decrease reported earnings during a period.

4.4 Relation between CFHA and EM incentives after the adoption of ASU 2011-05

Finally, we examine whether the adoption of ASU 2011-05 changes the extent to which firms manage earnings using CFHA. We modify Eq. (1) by adding a binary variable, ASU, that takes the value of one for firm-year observations after the adoption of ASU 2011-05, as well as by adding interaction terms between EM incentives variables and ASU to capture the change in these incentives after the adoption of ASU 2011-05. We predict that due to an increase in transparency in OCI components following the adoption of ASU 2011-05, managers are less likely to use CFHA to manage earnings. Consistent with our prediction, the coefficient on the interaction term

TARGET*ASU is negative and significant (0.623) when the dependent variable is CFHA and the coefficient on the interaction term TARGET*ASU is positive and significant (0.656), and the coefficient on the interaction term BIGBATH*ASU is negative and significant (-0.473) when the dependent variable is OCI_D. Overall, the results in Table 5 provide partial support for H3 that firms are less likely to manage earnings using CFHA after the adoption of ASU 2011-05, however, EM with CFHA it is not eliminated completely.

4.5 Additional tests

In addition to our main analysis, we also perform several investigations to examine whether the tests are sensitive to our research design choice. First, one feature of our research design that may limit the generalizability of our results is the sample selection procedure. We start with the largest 1,000 non-financial firms as of 2001 and keep observations with *OCI_D*, and *OCI_T* available. However, Compustat has the necessary data to calculate the net impact of CFHA on earnings indirectly as the difference in accumulated derivatives gains and losses in OCI (*aocidergl*) between two consecutive years. To alleviate concerns that our results are due to sample restrictions or data collection, we replicate our main analysis using *OCI_NET* calculated using *aocidergl* from Compustat. When *OCI_NET* is negative firms defer losses to OCI or transfer gains from OCI to earnings, therefore CFHA is income increasing. The opposite is true when *OCI_NET* is positive. Table 6 presents the results of this analysis. *OCI_NET* is income increasing when firms have income increasing incentives (TARGET) and income decreasing when firms have incentives to take a big bath (BIGBATH). The results using the larger Compustat sample are consistent with our main results.

Second, given that the median values for OCI_D and OCI_T are close to 0, we replicate our main tests with OCI_D and OCI_T truncated at different levels (0.01, 0.05, 0.1), with similar results. Third, in our main tests, we deflate all continuous variables in the study by end-of-period sales. We repeat our analysis using end-of-period total assets as a deflator, with similar results. We also include a trend variable to examine whether there is a learning curve for CFHA after the adoption of SFAS 133 or whether firms change their use of CFHA for EM purposes over time. Results are not sensitive to the inclusion of the trend variable and we do not find evidence of a learning curve or of a change in EM with CFHA over time, other than the impact of ASU 2011-05. Overall, the robustness tests performed in this section confirm that our findings are robust to alternate sample selection criteria and to an alternate deflator for the continuous variables.

5. CONCLUSION

In this study, we examine whether firms manage earnings using cash flow hedge accounting by deferring derivatives gains/losses amounts to other comprehensive income or transferring derivatives gain/loss amounts from accumulated other comprehensive income to earnings. Across all tests and measures of cash flow hedge accounting, we find evidence consistent with earnings management. Specifically, firms with income-increasing incentives (TARGET) increase earnings using CFHA by deferring losses to OCI (lower OCI_D) or transferring gains from AOCI to earnings (OCI_T). Further, firms with income-decreasing incentives (BIGBATH) decrease earnings using CFHA by deferring gains to OCI (lower OCI_D) or transferring losses from AOCI to earnings (OCI_T). Finally, our EM variables are related to the decisions to designate and de-designate derivatives as cash flow hedges. These finding suggests that managers may retroactively designate derivatives as cash flow hedges after observing hedging results and may

de-designate derivatives to time the recognition of unrealized CFHA gains/losses in AOCI. Finally, we find that an increase in the transparency of OCI following the adoption of ASU 2011-05 reduces, but does not eliminate earnings management with cash flow hedge accounting.

REFERENCES

- Abdel-Khalik, R. A., & Chen, P. (2015). Growth in financial derivatives: The public policy and accounting incentives. *Journal of Accounting and Public Policy*, 34(3), 291–318.
- Barth, M. E., Gomez-Biscarri, J., Kasznik, R., & López-Espinosa, G. (2017). Bank earnings and regulatory capital management using available for sale securities. *Review of Accounting Studies*, 22(4), 1761–1792.
- Barton, J. (2001). Does the use of financial derivatives affect EM decisions? *The Accounting Review*, 76(1), 1–26.
- Barton, J., Hansen, T. B., & Pownall, G. (2010). Which performance measures do investors around the world value the most-and why? *Accounting Review*, 85(3), 753–789.
- Bartov, E., Givoly, D., & Hayn, C. (2002). The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics*, 33(2), 173–204.
- Beatty, A., Chamberlain, S. L., & Magliolo, J. (1995). Managing financial reports of commercial banks: The influence of taxes, regulatory capital, and earnings. *Journal of Accounting Research*, 33(2), 231–261.
- Black, D. E. (2015). *Other comprehensive income: A review and directions for future research*. PhD Proposal. Dartmouth College.
- Bodnar, G. M., Hayt, G. S., & Marston, R. C. (1996). 1995 Wharton survey of derivatives usage by US non-financial firms. *Financial Management*, 25(4), 113–133.
- Bodnar, G. M., Graham, J. R., Harvey, C. R., & Marston, R. C. (2011). *Managing risk management* (Working paper). Johns Hopkins University, Baltimore, MD; Duke University, Durham, NC; University of Pennsylvania, Philadelphia, PA.
- Bowen, R. M., Rajgopal, S., & Venkatachalam, M. (2008). Accounting Discretion, Corporate Governance, and Firm Performance. *Contemporary Accounting Research*, 25(2), 351–405.
- Campbell, J. (2015). The fair value of cash flow hedges, future profitability, and stock returns. *Contemporary Accounting Research*, 32(1), 243–279.
- Campbell, J., J. Downes, & W.C. Schwartz, Jr. (2015). Do sophisticated investors use the information provided by the fair value of cash flow hedges? *Review of Accounting Studies*, 20(2), 934–975.
- Campbell, J., L. M. Mauler, & S. R. Pierce (2019). A review of derivatives research in accounting and suggestions for future work. *Journal of Accounting Literature*, 42, 44–60.
- Chang, H. S., Donohoe, M. P., & Sougiannis, T. (2016). Do analysts understand the economic and reporting complexities of derivatives? *Journal of Accounting and Economics*, 61(2-3), 584–604.
- Chernenko, S., & Faulkender, M. (2011). The two sides of derivatives usage: Hedging and speculating with interest rate swaps. *The Journal of Financial and Quantitative Analysis*, 46(6), 1727–1754.
- Choi, J., Mao, C., & Upadhyay, A. (2015). EM and derivative hedging with fair valuation: Evidence from the effects of FAS 133. *The Accounting Review*, 90(4), 1437–1467.
- Dong, M., Ryan, S., & Zhang, X. J. (2014). Preserving amortized costs within a fair-value-accounting framework: Reclassification of gains and losses on available-for-sale securities upon realization. *Review of Accounting Studies*, 19(1), 242–280.

- Donohoe, M. P. (2015). The economic effects of financial derivatives on corporate tax avoidance. *Journal of Accounting and Economics*, 59(1), 1–24.
- Durtschi, C., & Easton, P. (2005). EM? The shapes of the frequency distributions of earnings metrics are not evidence ipso facto. *Journal of Accounting Research*, 43, 521–556.
- Financial Accounting Standards Board (FASB). (1998). *Accounting for Derivative Instruments and Hedging Activities* (Statement of Financial Accounting Standard No. 133). Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB). (1999). *Statement 133 implementation issue No. J3. Transition Provisions: Requirements for hedge designation and documentation on the first day of initial application*. Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB). (2008). *Disclosures about Derivative Instruments and Hedging Activities* (Statement of Financial Accounting Standard No. 161). Norwalk, CT: FASB.
- Financial Accounting Standards Board (FASB). (2017). *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities* (Accounting Standards Update). Norwalk, CT: FASB.
- Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, 40(1), 3–73.
- Guay, W. R. (1999). The impact of derivatives on firm risk: An empirical examination of new derivative users. *Journal of Accounting and Economics*, 26, 319–351.
- Healy, P. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, 7(1-3), 85–107
- Hirst, D.E., & Hopkins, P.E., 1998. Comprehensive income reporting and analysts' valuation judgments. *Journal of Accounting Research*, 36 (Suppl.): 47–75.
- Harris, T.S., & Rajgopal, S. (2018). *Foreign Currency: Accounting, Communication and Management of Risks* (Working Paper). Columbia University, New York, NY.
- Jickling, M. (2005). *Accounting Problems at Fannie Mae* (Report), Washington, D.C. Retrieved from digital.library.unt.edu/ark:/67531/metacrs8305/
- Jones, J. (1991). EM during import relief investigations. *Journal of Accounting Research*, 29(2), 193–228.
- Kilic, E., Lobo, G., Ranasinghe, T., & Sivaramakrishnan, K. (2013). The impact of SFAS 133 on income smoothing by banks through loan loss provisions. *The Accounting Review*, 88(1), 233–260.
- Koonce, L., Lipe, M. G., & McAnally, M. L. (2005). Judging the risk of financial instruments: problems and potential remedies. *The Accounting Review*, 80(3), 871–895.
- Lee, Y.-J., Petroni, K. R., & Shen, M. (2006). Cherry Picking, Disclosure Quality, and Comprehensive Income Reporting Choices: The Case of Property-Liability Insurers. *Contemporary Accounting Research*, 23(3), 655-692.
- Maines, L. A., & McDaniel, L. S. (2000). Effects of comprehensive-income characteristics on nonprofessional investors' judgments: The role of financial-statement presentation format. *The Accounting Review*, 75(2), 179–207.
- McNichols, M., & G. Wilson. (1988). Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research*, 26(Supplement), 1–31.

- McVay, S. E. (2006). Earnings management using classification shifting: An examination of core earnings and special items. *The Accounting Review*, 81(3), 501–531.
- Moyer, S. E. (1990). Capital adequacy ratio regulations and accounting choices in commercial banks. *Journal of Accounting and Economics*, 13(2), 123–154.
- Nan, L. (2008). The agency problems of hedging and EM. *Contemporary Accounting Research*, 25(3), 859–890.
- Petersen, M.A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies*, 22, 435–480.
- Pierce, S. (2015). Does the accounting for derivatives affect risk and value? (Working paper). Florida State University, Tallahassee, FL.
- Pincus, M., & Rajgopal, S. (2002). The interaction between accrual management and hedging: Evidence from oil and gas firms. *The Accounting Review*, 77(1), 127–160.
- Rees, L. L., & Shane, P. B. (2012). Academic research and standard-setting: The case of other comprehensive income. *Accounting Horizons*, 26(4), 789–915.
- Roychowdhury, S. (2006). EM through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335–370.
- Sapra, H. (2002). Do mandatory hedge disclosures discourage or encourage excessive speculation? *Journal of Accounting Research*, 40(3), 933–964.
- Schipper, K. (1989). Commentary on EM. *Accounting Horizons*, 3(4), 91–102.
- Scholes, M., Wilson, P., & Wolfson, M. (1990). Tax planning, regulatory capital planning, and financial reporting strategy for commercial banks. *The Review of Financial Studies*, 3(4), 625–650.
- Skinner, D., & R. G. Sloan. (2002). Earnings surprises, growth expectations, and stock returns or don't let an earnings torpedo sink your portfolio. *Review of Accounting Studies*, 7 (2–3), 287–312.
- Vasvari, F. (2012). Discussion of “Hedge commitments and agency costs of debt: evidence from interest rate protection covenants and accounting conservatism”. *Review of Accounting Studies*, 17(3), 739–748.
- Watts, R., & Zimmerman, J. (1978). Towards a positive theory of the determination of accounting standards. *The Accounting Review*, 53(1), 112–34.

Appendix A Variable definitions

Derivatives variables

<i>AOCI</i>	Derivatives gains and losses deferred to AOCI (aocidergl) divided by sales (sale) and multiplied by 100 . Since firms report AOCI on an after-tax basis, we adjust it to a pre-tax amount by dividing it by 0.65 for all firms (Campbell 2015).
<i>CP_USER</i>	Indicator variable equal to one if the firm uses commodity price derivatives in year t; zero otherwise. Hand-collected from Form 10-K.
<i>FX_USER</i>	Indicator variable equal to one if the firm uses foreign exchange derivatives in year t; zero otherwise. Hand-collected from Form 10-K.
<i>IR_USER</i>	Indicator variable equal to one if the firm uses interest rate derivatives in year t; zero otherwise. Hand-collected from Form 10-K.
<i>EXP</i>	Hedge accounting experience, equal to the number of periods the firm used hedge accounting from 2001, the year SFAS 133 establishes hedge accounting, to the current period. Hand-collected from Form 10-K.
<i>DED</i>	Indicator variable equal to one if the firm de-designates derivatives in cash flow hedges during that fiscal year; zero otherwise. Firm is coded as one by reading relevant firm disclosures. Potential firms are identified using a keyword search conducted through DirectEDGAR.
<i>OCI_D</i>	Derivatives gain/loss amounts deferred to OCI divided by sales (sale) and multiplied by 100 . OCI_D is negative for losses. Hand-collected from Form 10-K. If OCI_D is reported after-tax, we adjust it to a pre-tax amount by dividing it by 0.65 for all firms (Campbell 2015).
<i>OCI_T</i>	Derivatives gain/loss amounts transferred from AOCI to earnings divided by sales (sale) and multiplied by 100 . OCI_T is negative for losses. Hand-collected from Form 10-K. If OCI_T is reported after-tax, we adjust it to a pre-tax amount by dividing it by 0.65 for all firms (Campbell 2015).
<i>OCI_NET</i>	Net derivatives gain/loss amounts deferred to OCI divided by sales (sale) and multiplied by 100 ($OCI_D - OCI_T$). Hand-collected from Form 10-K. For the Compustat sample this variable is defined as $aocidergl_t - aocidergl_{t-1}$ divided by sales (sale) and multiplied by 100 .
<i>USER</i>	Indicator variable equal to one if the firm uses derivatives and cash flow hedge accounting in year t; zero otherwise. Hand-collected from Form 10-K.

EM incentives

<i>FE</i>	Before-tax (tax adjustment is 35%) signed difference between actual (actual) earnings and the consensus analyst earnings forecast (meanest) multiplied by csho, divided by total sales (sale) and multiplied by 100 (IBES summary file).
<i>AFE</i>	Adjusted forecast error (forecast error before CFHA), defined as $FE + OCI_NET$.
<i>TARGET</i>	Indicator variable equal to one if the adjusted adjusted error (AFE) is negative; zero otherwise.
<i>BIGBATH</i>	Indicator variable equal to one if the forecast error (FE) is negative; zero otherwise.
<i>SUSP_TG</i>	Indicator variable equal to one if the adjusted forecast error (AFE) is negative and the firm has accumulated derivatives gains at the beginning of the period ($AOCI > 0$); zero otherwise.

<i>SUSP_BB</i>	Indicator variable equal to one if the adjusted forecast error (AFE) is negative and the firm has accumulated derivatives losses at the beginning of the period (AOCI<0); zero otherwise.
<i>SUSP_SD</i>	Indicator variable equal to one if the adjusted forecast error (AFE) is positive and the firm has accumulated derivatives losses at the beginning of the period (AOCI<0); zero otherwise.
<i>ASU</i>	Indicator variable equal to one for observations with fiscal years starting after December 15, 2011; zero otherwise.

Controls (alphabetical)

<i>ALTZ</i>	Likelihood of entering financial distress, defined as the modified Altman-Z score based on parameter weights reported by Shumway (2001).
<i>BIGN</i>	Indicator variable equal to one if auditor is BIG 4/5; zero otherwise.
<i>BTM</i>	Book to market ratio, defined as book value of equity (ceq) divided by market value of equity (prcc_f*csho).
<i>CETR</i>	Cash effective tax rate (three-year), defined as the three-year sum (t to $t+2$) of worldwide cash taxes paid (txpd) divided by the three-year sum (t to $t+2$) of pre-tax book income (pi) less special items (spi). ETRs are reset to 1 (0) if greater (less) than 1 (0). See Dyreng et al. (2008).
<i>CVOL</i>	Standard deviation of quarterly operating cash flows (oancf) deflated by total assets (at) (based on the last 12 quarters of data), calculated for each firm-period.
<i>ECSENS</i>	Sensitivity of executive compensation to firm value, defined by first computing the dollar change in value of CEO stock and option holdings that would result from a one percentage point increase in the stock price of the firm ($0.01 \times \text{prcc}_f \times [\text{shrown_tot} + \text{opt_unex_exer_num}]$). The result is then normalized by the sum of CEO salary and bonus (salary + bonus) to capture the share of total CEO compensation that would result from a one percentage point increase in firm value. Compensation data obtained from Execucomp. See Bergstresser and Philippon (2006).
<i>EVOL</i>	Standard deviation of quarterly earnings (ib) deflated by total assets (at) (based on the last 12 quarters of data), calculated for each firm-period.
<i>IND_GROWTH</i>	Industry sales growth defined as the change in industry sales from year $t-1$ to year t divided by industry sales in year $t-1$.
<i>FOL</i>	Analyst following, defined as the total number of analysts following firm i in year t (obtained from the I/B/E/S detail file).
<i>LEHMAN</i>	Dummy variable equal to 1 if fiscal year is 2008, the year Lehman Brothers declared bankruptcy.
<i>LEV</i>	Long-term debt (dltt) divided by total assets (at).
<i>MA</i>	Indicator variable equal to one if cash flow from mergers and acquisitions (aqc) is not equal to zero; zero otherwise.
<i>PI</i>	Pre-tax income (pi) divided by total assets (at).
<i>ROA</i>	Return on assets, defined as pre-tax income (pi) divided by total assets (at).
<i>SIZE</i>	Firm size, defined as the log of total assets (at).

Macro controls (alphabetical)

EARNINGS MANAGEMNET WITH CASH FLOW HEDGE ACCOUNTING

<i>LIBOR</i>	Difference between the London Interbank Offer Rate and overnight indexed swap rates.
<i>VIX</i>	Implied volatility of options on the S&P 500 index (Federal Reserve Bank of St. Louis).

^aCompustat mnemonics in parentheses.

Appendix B**Derivatives and cash flow hedge accounting**

Derivatives are important tools in firms' risk management activities and are extensively used by both financial and non-financial firms. SFAS 133 (FASB 1998), effective June 2001, defines derivatives and requires firms to measure them at fair value and to recognize the change in fair value as gains/losses in the income statement each period. These requirements increase income volatility if gains and losses on derivatives and the hedged item are not recognized in earnings in the same period. Hedge accounting reduces income volatility for qualifying derivatives in hedging relations by allowing firms to recognize gains and losses on both the derivatives and the hedge item in the same period.

Under SFAS 133, derivatives may be designated as: (i) hedges of the exposure to variable cash flows of an asset, liability, or a forecasted transaction (cash flow hedge); (ii) hedges of the exposure to changes in the fair value of a recognized asset, liability, or a firm commitment (fair value hedge); or (iii) hedges of the foreign currency exposure of a net investment in a foreign operation (net investment hedge). Firms initially record after-tax unrealized gains/losses on cash flow hedge derivatives in OCI. These unrealized gains/losses accumulate in AOCI and are transferred to earnings when: (i) the hedged item affects earnings; (ii) the hedge is voluntarily de-designated; or (iii) the hedge is de-designated because the counterparty cannot honor the contract; or (iv) the hedge is de-designated because it is probable that the original forecasted transaction will not occur by the end of the originally specified period or within an additional two months after.

When derivatives in cash flow hedges are de-designated, the accounting treatment for the accumulated derivatives gains and losses in AOCI depends on why de-designation occurs. If cash flow hedges are discontinued because the counterparty in the derivatives transaction cannot honor the contract or if cash flow hedges are discontinued because it is probable that the original forecasted transaction will not occur, the unrealized derivatives gains/losses in AOCI are immediately reclassified into earnings². However, if the forecasted transaction is no longer probable but still reasonably possible, the gains and losses that arose before the date the transaction is deemed no longer probable will continue to be included in AOCI and future gains and losses will be included in earnings. The latter accounting treatment applies if cash flow hedge accounting is voluntarily de-designated.

Both the FASB and the IASB agree that a history of de-designating derivatives in cash flow hedges because the forecasting transaction is no longer probable calls into question the entity's ability to predict similar transactions accurately. IASB's new general hedge accounting requirements added to IFRS 9 prohibit voluntary de-designation of accounting hedges, unless the risk management objective for such relations changes. Cash flow hedge discontinuation was also the topic of several issues of the Derivatives Implementation Group (G3, G17, G18, G20). Further, in a recent Accounting Standards Update, the FASB allowed more risk components to qualify for hedge accounting and simplified the documentation and assessment requirements in applying hedge accounting. Under GAAP, ASU 2011-05, effective for fiscal years beginning Dec 15, 2011, requires firms to report OCI, including derivatives gains and losses, either at the bottom of the statement of income or in a separate comprehensive income statement.

² In Statement 133 implementation guidance No. G3, the FASB staff further clarifies that if the forecasted transaction will not occur by the originally specified period or within two months of this date, derivatives gains and losses accumulated in OCI should be reclassified in earnings immediately.

Appendix C

Examples of disclosures for firms that de-designate derivatives in cash flow hedges

Anticipated transaction will not occur or is no longer probable (gain/loss reclassified in earnings)

Deerfield Capital Corp., 2008

“As of January 1, 2008, the other comprehensive loss related to the de-designation of interest rate hedges attributable to the adoption of SFAS No. 159 was \$69.9 million. To the extent that the forecasted rolls on repurchase agreement transactions continued as anticipated, we would have amortized this loss and the \$27.3 million in other comprehensive loss related to previously de-designated swaps from other comprehensive loss into interest expense over the remaining original hedge period, and all future changes in fair value would be reflected in the consolidated statements of operations. However, due to the significant RMBS sales activity and corresponding repurchase agreement repayment during the three months ended March 31, 2008, forecasted rolls on the repaid repurchase agreements are not continuing as anticipated. As a result, a loss of \$91.7 million was recognized during the three months ended March 31, 2008 in the consolidated statements of operations in net loss on derivatives, and the corresponding cumulative net loss relating to newly and previously de-designated interest rate swaps in other comprehensive loss was removed. The remaining \$0.2 million of other comprehensive loss related to the terminated and de-designated swaps as of December 31, 2008 will be amortized over the remaining original hedge period. Additionally, we recorded a net increase to interest expense of \$5.4 million during the year ended December 31, 2008, related to the amortization of de-designated and terminated interest rate swaps.”

NORANDA ALUMINUM HOLDING, 2009

“(Gain) loss on hedging activities, net was a gain of \$111.8 million for the year ended December 31, 2009 compared to a \$69.9 million loss for the year ended December 31, 2008. We discontinued hedge accounting for our entire remaining aluminum fixed price sale swaps on January 29, 2009. For the year ended December 31, 2009, the amount reclassified from accumulated other comprehensive income to earnings was \$172.2 million including \$77.8 million reclassified into earnings because it is probable that the original forecasted transactions will not occur.

De-designation because counterparty declared bankruptcy (gain/loss reclassified in earnings)

CONTINENTAL AIRLINES INC., 2009

“Lehman Brothers, one of the counterparties to our fuel derivative contracts, declared bankruptcy on September 15, 2008. As a result, we determined that our fuel derivative contracts with Lehman Brothers were not highly effective hedges. Therefore, we discontinued hedge accounting for these contracts as of September 15, 2008 and all subsequent changes in the contracts' fair values were reported in earnings. In 2008, we recognized losses of \$125 million in other non-operating income (expense) related to the changes in the fair value of these contracts. In January 2009, we settled all open contracts with Lehman Brothers.”

Voluntary de-designation (gain/loss not reclassified in earnings)

NOBLE ENERGY INC., 2008

“Through December 31, 2007, we elected to designate the majority of our crude oil and natural gas derivative instruments as cash flow hedges. Effective January 1, 2008, we voluntarily discontinued cash flow hedge accounting on all existing commodity derivative instruments. We voluntarily made this change

EARNINGS MANAGEMNET WITH CASH FLOW HEDGE ACCOUNTING

to provide greater flexibility in our use of derivative instruments. From January 1, 2008 forward, we recognize all gains and losses on such instruments in earnings in the period in which they occur. Net derivative losses that were deferred in AOCL as of December 31, 2007, as a result of previous cash flow hedge accounting, are reclassified to earnings in future periods as the original hedged transactions occur. The discontinuance of cash flow hedge accounting for commodity derivative instruments did not affect our net assets or cash flows at December 31, 2007 and does not require adjustments to our previously reported financial statements.”

Appendix D**Mathematical examination of the effect of designating and de-designating derivatives in cash flow hedges**

Suppose the firm has \$1,000 in operating, net, and comprehensive income in each of the three years 2021 – 2023 before it purchases a derivative. That is, assume the following holds for each year: Operating Income (OI) = Net Income (NI) = Comprehensive Income = \$1,000. Also, assume that the firm purchases a derivative in 2021 that matures in 2023. The derivative has an unrealized loss in 2021 of \$200, that this partially reverses in 2022 by \$50 (so unrealized gain in 2022 of \$50), and then that the derivative's accumulated unrealized loss of \$150 is realized in 2023. Also assume that the derivative qualifies for hedge accounting. Then consider three cases: (i) CFHA is not adopted; (ii) CFHA is adopted and applied in 2021 – 2023 (the derivative is designated); and (iii) CFHA is adopted in 2021, but the derivative is de-designated at the beginning 2022. Then the reported income each year in the three cases would be as follows:

	Case A: No CFHA			Case B: Designation			Case C: De-designation		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
OI	800	1050	1000	1000	1000	850	1000	850	1000
NI	800	1050	1000	1000	1000	850	1000	850	1000
CI	800	1050	1000	800	1050	1000	800	1050	1000

We should note a few points about the example. First, the total cumulative OI, NI, and CI for each three-year period under each case is always the same and equals \$2,850, which is the cumulative pre-derivative income of \$3,000 less the realized loss of \$250. Second, employing CFHA allows the manager to increase OI and NI in 2021, but this reverses in 2023 when the derivative loss is realized. Third, by using de-designation, the manager can speed up the reporting of the loss to 2022.

Table 1Characteristics of *derivatives users* – Main sample**Panel A:** Temporal distribution of user observations, by risk exposure hedged

Fiscal year	FX User	IR user	CP user	User
2001	298	266	93	453
2002	314	279	101	475
2003	328	297	108	494
2004	322	290	102	481
2005	324	241	100	453
2006	322	228	104	436
2007	327	235	101	431
2008	325	221	116	422
2009	323	230	112	421
2010	321	219	108	410
2011	326	205	112	402
2012	323	186	107	398
2013	302	170	94	380
Total	4,155	3,067	1,358	5,656

Table 1, Panel A reports the temporal distribution of different types of derivatives users. A firm is a User in fiscal year t if it reports a position in derivatives at the end of that fiscal year. A firm is a FX user, IR user, or CP user in fiscal year t if it reports a position in foreign exchange, interest rate, or commodity price derivatives respectively at the end of that fiscal year.

Panel B: Industry distribution of user observations

Industry group	User	Percent
Consumer Non-Durables	450	7.96
Consumer Durables	243	4.3
Manufacturing	900	15.91
Energy & Extraction	383	6.77
Chemicals and Allied Products	389	6.88
Business Equipment	1,304	23.06
Telecommunications	187	3
Wholesale & Retail	622	11
Healthcare	518	9.16
Constr., Transport. & Services	660	11.67
Total	5,656	100

Table 1, Panel B reports the industry distribution of derivatives users. Financial firms and utilities are excluded from the sample.

Panel C: Descriptive statistics

	CFHA user		Non-CFHA user	
	Mean	Median	Mean	Median
OCI_T*	-0.075	-0.006	0.000	0.000
OCI_D*	-0.100	-0.005	0.000	0.000
FE*	0.089	0.059	0.119	0.050
AFE*	0.064	0.071	0.119	0.050
ASU	0.195	0.000	0.071	0.000
LEAD_PI	0.111	0.103	0.084	0.087
EVOL	0.015	0.009	0.018	0.009
CVOL	0.023	0.017	0.024	0.018
CETR	0.219	0.217	0.220	0.217
ECSENS	0.218	0.179	0.173	0.111
ALTZ	3.473	2.876	3.646	2.948
PMDAC	-0.015	-0.008	-0.020	-0.010
NOPI	0.009	0.003	0.009	0.004
SPI	-0.018	-0.005	-0.024	-0.003
MA	0.582	1.000	0.558	1.000
ROA	0.086	0.085	0.072	0.078
BTM	0.424	0.371	0.428	0.383
SIZE	8.895	8.786	8.221	8.059
EXP	4.769	4.000	1.808	1.000
FOL	20.067	19.000	17.471	16.000
VIX	20.531	18.310	20.278	18.310
LIBOR	1.506	0.581	2.299	1.860

Table 1, Panel C reports descriptive statistics for the sample of CFHA users (2,452 observations) and non-CFHA users (3,204 observations). All continuous variables are winsorized at 1st and 99th percentile. As detailed in Appendix A, variables marked with * **are multiplied by 100** to reduce the number of leading zeros.

Table 2Characteristics of *derivatives users* – DED sample**Panel A:** Temporal distribution of observations

Fiscal year	<u>Non-DED</u>	<u>DED</u>
2001	869	10
2002	991	12
2003	1,040	16
2004	1,092	19
2005	1,175	24
2006	1,275	30
2007	1,360	29
2008	1,421	70
2009	1,405	75
2010	1,366	36
2011	1,308	39
2012	1,288	35
2013	1,252	37
2014	1,231	30
2015	1,210	11
Total	<u>18,238</u>	<u>458</u>

Table 2, Panel A reports the temporal distribution of firms that use CFHA. The first column reports firms that do not de-designate during the period, while the second column reports firms that de-designate.

Panel B: Reasons for de-designation

	<u>User</u>	<u>Percent</u>
Forecasted transaction no longer probable	185	40.39
Hedge no longer effective	42	9.17
Change in risk management strategy	39	8.52
Change in timing of forecasted transaction	14	3.06
Counterparty bankruptcy	12	2.62
Derivatives terminated	6	1.31
Firm default	4	0.87
Natural disasters	3	0.66
Other	36	7.86
No reason given	117	25.55
Total	<u>458</u>	<u>100</u>

Table 2, Panel B reports the reasons for de-designation.

Panel C: Descriptive statistics

	Mean	Std. Dev	Q1	Median	Q3
Dependent variable					
<i>DED</i>	0.024	0.154	0.000	0.000	0.000
Explanatory Variables					
<i>SUSPECT_TG</i>	0.155	0.362	0.000	0.000	0.000
<i>SUSPECT_BB</i>	0.218	0.413	0.000	0.000	0.000
<i>SUSPECT_SD</i>	0.351	0.477	0.000	0.000	1.000
Control variables					
<i>EXP</i>	7.786	5.686	3.000	7.000	12.000
<i>SIZE</i>	8.163	1.763	6.925	8.008	9.283
<i>IND_GROWTH</i>	0.039	0.110	-0.017	0.040	0.096
<i>ALTZ</i>	2.487	3.233	0.764	1.911	3.304
<i>BIGN</i>	0.890	0.313	1.000	1.000	1.000
<i>SIZE</i>	11.585	8.754	5.000	9.000	17.000
<i>FOL</i>	0.012	0.028	0.000	0.004	0.011
<i>EVOL</i>	0.028	0.029	0.000	0.024	0.043
<i>CVOL</i>	0.450	0.498	0.000	0.000	1.000
<i>MA</i>	0.253	0.199	0.098	0.225	0.366
<i>LEV</i>	0.575	0.856	0.309	0.503	0.768
<i>BTM</i>	0.048	0.119	0.011	0.046	0.095
<i>ROA</i>	20.450	7.744	14.020	18.310	23.400
<i>VIX</i>	1.538	1.793	0.231	0.436	2.400
<i>LIBOR</i>	7.786	5.686	3.000	7.000	12.000

Table 2, Panel C reports the descriptive statistics for the study's dependent variables, key explanatory variables, and various control variables. All the variables are defined in Appendix A.

Panel D: De-designation rates by earnings management incentives

	Control	SUSPECT_TG	SUSPECT_BB	SUSPECT_SD
DED	0.012	0.027	0.029	0.030

Table 2, Panel D reports DED rates by risk management incentives. All the variables are defined in Appendix A.

Table 3
EM tests of the designation decision

Panel A: Relation between EM incentives and the decision to designate derivatives as cash flow hedges

	Exp	CFHA		
		<i>Coeff.</i>		<i>z-stat</i>
TARGET	+	0.773	***	6.360
BIGBATH	+	-0.621	***	-4.570
IR_USER	+	-0.037		-0.280
LEAD_PI	?	0.953	**	2.100
EXP	?	0.201	***	7.090
EVOL	?	-5.948	**	-2.120
CVOL	?	2.624		0.740
CETR	?	-0.359		-0.990
ECSENS	?	-0.822	*	-1.920
ALTZ	?	0.036		1.050
LEV	?	0.187		0.340
MA	?	0.027		0.240
BIGN	?	0.347		0.570
FOL	?	0.003		0.390
BTM	?	-0.125		-0.510
SIZE	?	0.278	***	3.500
ROA	?	-0.563		-0.940
VIX	?	0.003		0.240
LIBOR	?	-0.086		-1.050
Industry FE		Yes		
Year FE		Yes		
Adjusted R ²		22.03%		
Observations		5,656		

Table 3, Panel A reports results of estimating Eq. (1) using a logit regression, where the dependent variable is *CFHA*, equal to one if firms use cash flow hedge accounting during the year, zero otherwise. *, **, and *** denote statistical significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed for non-signed and one-tailed for signed tests). Robust standard errors (RSE) are clustered by firm. All variables are defined in Appendix A.

Panel B: Relation between EM incentives and OCI_D

	Exp with EM	<i>OCI_D</i> <i>Coeff.</i>		<i>t-stat</i>
TARGET	-	-0.869	***	-10.090
BIGBATH	+	0.576	***	6.800
IR_USER	?	0.037		0.580
LEAD_PI	-	-0.953	***	-2.540
EXP	?	0.007		0.960
CVOL	?	-1.825		-1.600
EVOL	?	2.464		1.620
CETR	?	0.124		0.780
ECSENS	?	0.180		1.070
ALTZ	?	0.016		1.160
LEV	?	-0.572	***	-2.650
MA	?	-0.003		-0.070
BIGN	?	0.024		0.210
FOL	?	-0.003		-0.770
BTM	?	-0.048		-0.520
SIZE	?	0.029		1.020
ROA	?	0.410		1.000
FOL	?	0.002		0.570
VIX	?	0.050		1.010
LIBOR	?	-0.869		-10.090
Industry FE		Yes		
Year FE		Yes		
Adjusted R ²		16.33%		
Observations		2,452		

Table 3, Panel B reports results of estimating Eq. (1) using OLS regressions, where the dependent variable is *OCI_D*, defined as pre-tax derivatives gains/losses deferred to OCI (hand-collected), divided by sales (sale), and multiplied by 100. *, **, and *** denote statistical significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed for non-signed and one-tailed for signed tests). Robust standard errors (RSE) are clustered by firm. All variables are defined in Appendix A.

Table 4
EM tests of the de-designation decision

Panel A: Relation between EM incentives and the decision to de-designate derivatives in cash flow hedges

		DED		DED1	
		<i>Coeff.</i>	<i>z-stat</i>	<i>Coeff.</i>	<i>z-stat</i>
SUSPECT_TG	+	0.498	*** 2.670	0.573	*** 2.980
SUSPECT_BB	+	0.523	*** 3.020	0.567	*** 3.130
SUSPECT_SD	+	0.734	*** 4.760	0.815	*** 5.060
LAG_DED	+	1.604	*** 8.470	1.628	*** 8.490
EXP	?	0.040	*** 4.430	0.041	*** 4.410
SIZE	?	-0.040	-0.920	-0.021	-0.480
BIG	-	-0.056	-0.320	-0.095	-0.540
FOL	-	0.004	0.450	0.001	0.170
EVOL	+	3.509	*** 3.270	3.724	*** 3.170
CVOL	+	2.713	1.640	3.064	** 1.860
MA	+	0.097	0.920	0.080	0.740
LEV	+	0.983	*** 3.710	0.930	*** 3.430
BTM	?	-0.035	-0.720	-0.035	-0.690
ROA	?	-0.619	*** -3.320	-0.669	*** -3.600
IND_GROWTH	-	-0.784	** -1.940	-0.621	* -1.470
ALTZ	-	-0.046	** -1.940	-0.044	** -1.930
LEHMAN	+	0.516	** 2.020	0.356	* 1.340
VIX	?	0.006	0.600	0.005	0.550
LIBOR	?	-0.014	-0.410	-0.016	-0.460
Industry FE		Yes		Yes	
Year FE		No		No	
Pseudo R ²		9.4%		9.3%	
Observations		18,741		18,741	

Table 4, Panel A reports results of estimating Eq. (2) using a logistic regression. DED is an indicator variable equal to 1 if firms de-designate derivatives in cash flow hedges during the fiscal year, and 0 otherwise. *, **, and *** denote statistical significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed for non-signed and one-tailed for signed tests). Robust standard errors (RSE) are clustered by firm. All variables are defined in Appendix A.

Panel B: Relation between EM incentives and OCI_T

	Exp with EM	<i>OCI_T</i>	
		<i>Coeff.</i>	<i>t-stat</i>
TARGET	+	0.204	*** 2.920
BIGBATH	-	-0.112	** -2.000
<i>LAG_AOCI</i>	+	0.420	*** 6.620
<i>EXP</i>	?	0.009	1.380
<i>SIZE</i>	?	0.017	0.510
<i>BIG</i>	?	0.064	1.190
<i>FOL</i>	?	0.000	-0.080
<i>EVOL</i>	?	2.629	1.410
<i>CVOL</i>	?	-0.224	-0.190
<i>MA</i>	?	-0.075	* -1.700
<i>LEV</i>	?	0.133	0.630
<i>BTM</i>	?	0.113	1.170
<i>ROA</i>	?	0.229	0.840
<i>IND_GROWTH</i>	?	-0.611	** -2.280
<i>ALTZ</i>	?	0.002	0.230
<i>LEHMAN</i>	?	-0.071	-1.040
<i>VIX</i>	?	0.001	0.340
<i>LIBOR</i>	?	0.009	0.690
Industry FE		Yes	
Year FE		No	
Adjusted R ²		23.67%	
Observations		2,452	

Table 4, Panel B reports results of estimating Eq. (3) using an OLS regression, where the dependent variable is OCI_T. *, **, and *** denote statistical significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed for non-signed and one-tailed for signed tests). Robust standard errors (RSE) are clustered by firm. All variables are defined in Appendix A.

Table 5
Relation between EM incentives and OCI_NET before and after ASU 2011-05

	<i>CFHA</i>			<i>OCI_D</i>		
	<i>Coeff.</i>		<i>t-stat</i>	<i>Coeff.</i>		<i>t-stat</i>
<i>TARGET</i>	0.847	***	6.130	-0.976	***	-9.660
<i>TARGET*ASU</i>	-0.623	***	-4.090	0.656	***	6.640
<i>BIGBATH</i>	-0.584	**	-2.060	0.605	***	4.260
<i>BIGBATHASU</i>	-0.033		-0.110	-0.473	***	-3.280
Controls	Yes			Yes		
Industry FE	Yes			Yes		
Year FE	Yes			Yes		
Adjusted R ²	22.15%			17.14%		
Observations	5,656			2,452		

Table 5 reports results of estimating Eq. (1) using a logit (OLS) regression, where the dependent variable is CFHA (OCI_D). Eq. (1) is modified by including the variable ASU, equal to one for observations with fiscal years starting after December 15, 2011, and zero otherwise, as well as interaction terms between EM incentives (TARGET and BIGBATH) and ASU. *, **, and *** denote statistical significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed for non-signed and one-tailed for signed tests). Robust standard errors (RSE) are clustered by firm. All variables are defined in Appendix A.

Table 6
Additional analysis

	Exp with EM	<i>OCI_NET</i>		
		<i>Coeff.</i>		<i>t-stat</i>
<i>TARGET</i>	+	-0.702	***	-32.170
<i>BIGBATH</i>	-	0.485	***	26.790
<i>LAG_AOCI</i>	+	-24.455	***	-23.010
<i>LAG_DED</i>		0.019		0.560
<i>EXP</i>	?	0.000		0.170
<i>SIZE</i>	?	0.005		1.440
<i>BIG</i>	?	0.007		0.420
<i>FOL</i>	?	0.001		1.310
<i>EVOL</i>	?	-0.334	*	-1.840
<i>CVOL</i>	?	-0.217		-1.300
<i>MA</i>	?	0.006		0.750
<i>LEV</i>	?	-0.177	***	-6.320
<i>BTM</i>	?	-0.004		-0.490
<i>ROA</i>	?	-0.077	*	-1.800
<i>IND_GROWTH</i>	?	-0.157	***	-3.070
<i>ALTZ</i>	?	0.001		0.780
<i>LEHMAN</i>	?	-0.042		-1.640
<i>VIX</i>	?	-0.004	***	-4.970
<i>LIBOR</i>	?	0.000		0.090
Industry FE		Yes		
Year FE		No		
Adjusted R ²		27.41%		
Observations		18,741		

Table 6 reports results of estimating Eq. (2) using an OLS regression, where the dependent variable is *OCI_NET*. We use the full compustat sample of cash flow hedge accounting users in this sample. *, **, and *** denote statistical significance levels of 0.10, 0.05, and 0.01, respectively (two-tailed for non-signed and one-tailed for signed tests). Robust standard errors (RSE) are clustered by firm. All variables are defined in Appendix A.