Simplifying Share-Based Payment Accounting: The Influence of FASB ASU No.2016-09 on Earnings and Cash Flow Volatility

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Abstract

In this study, we examine the influence of the adoption of Accounting Standard Update (ASU) No. 2016-09, *Compensation- Stock Compensation (Topic 718): Improvement to Employee Share-based Payment Accounting*, on earnings and cash flow volatility for firms that issue share-based compensation to employees. Our findings indicate higher levels of earnings and cash flow volatility after the implementation of ASU 2016-09. We also find that firms that issue more share-based compensation experience lower levels of earnings and cash flow volatility after the standard update. This study provides evidence that the simplified accounting treatment of share-based compensation is associated with significant increases in earnings and cash flow volatility, and that this relationship becomes less pronounced for firms that issue more share-based compensation. The findings of this study should be useful to policy makers, regulators, practitioners, and investors evaluating firms that use share-based compensation.

Keywords: share-based compensation, earnings volatility, cash flow volatility

1. Introduction

In this study, we examine the influence of the adoption of Accounting Standard Update (ASU) No. 2016-09, *Compensation- Stock Compensation (Topic 718): Improvement to Employee Share-based Payment Accounting*, on earnings and cash flow volatility for firms that issue share-based compensation to employees. Prior to ASU 2016-09, excess tax benefits for equity awards were reported as part of additional paid in capital (APIC) on the balance sheet, and tax deficiencies were offset by APIC with the remaining amount reported as income tax expense (Financial Accounting Standards Board [FASB], 2016). (Note 1) In addition, excess tax benefits were classified as financing activities on the statement of cash flows. In an effort to simplify the accounting for employee share-based compensation, the FASB released ASU No. 2016-09 in the first quarter of 2016. Under ASU No. 2016-09, companies are required to recognize all excess tax benefits and deficiencies on the income statement regardless of whether the tax benefits reduce income tax payable in the current period (FASB, 2016). The amendment also requires that excess tax benefits be reported as a cash flow from operating as opposed to financing activities. As a result of this change, a tax benefit (deficiency) will decrease (increase) income tax expense and increase (decrease) net income. (Note 2) Although the amendment does contribute to Financial Accounting Standards Board's (FASB) simplification initiative, (Note 3) it may also result in significant earnings and cash flow volatility for firms using share-based compensation due to the reclassification of excess tax benefits and deficiencies from the balance sheet to the income statement.

The issue of accounting for employee share-based compensation is economically significant given that many firms use share-based compensation in their incentive structure for employees. For example, after implementing ASU No. 2016-09 in 2016, Facebook Inc.'s earnings increased to $3.57 billion, up from $1.56 billion a year ago due to the reduction in their income tax provision related to share-based compensation (Rapport, 2017). In addition, companies such as Microsoft, Amazon, and Apple that use a great deal of share-based compensation are expected to have similar benefits from this amendment (Rapport, 2017). This suggests that fluctuations in income and operating cash flows are likely to be significant due to the change in accounting method for share-based compensation.

We examine the effects ASU 2016-09 on earnings and cash flow volatility using a sample of non-financial firms, observations from U.S. listed firms for the period 2015-2017. We find that the implementation of ASU 2016-09 does

create higher levels of earnings and cash flow volatility. We also find that firms that issue more share-based compensation experience lower levels of earnings and cash flow volatility after the implementation of ASU 2016-09. The findings of this study should be useful to policy makers and regulators in evaluating the cost and benefits of simplifying U.S. Generally Accepted Accounting Principles (GAAP), practitioners in determining the influence of new accounting treatment for share-based compensation on firm performance, and investors evaluating firms that use share-based compensation.

This study contributes to the existing literature in several ways. First, we provide evidence that the simplified accounting treatment of share-based compensation is associated with significant increases in earnings and cash flow volatility. We find a significant positive relationship between earnings volatility and the implementation of ASU 2016-09. Second, we find that the relationship between ASU 2016-09 and earnings and cash flow volatility becomes less pronounced for firms that issue more share-based compensation. Finally, we show that the FASB's simplification of this accounting standard may in fact be beneficial for those firms most affected by the standard.

The remainder of this paper is organized as follows: the second section presents the literature review and hypothesis development, section three describes the research design, section four presents the empirical results and sensitivity analysis, and the fifth section concludes.

2. Literature Review and Hypothesis Development

2.1 Accounting for Share-Based Compensation

Share-based compensation refers to the process of granting firm employees ownership in the firm's equity. The incentive is regarded as a way to reward their employees, in order to align the interests of firm insiders with shareholders. The primary advantage of this form of compensation to corporations is that employees can be compensated without reducing firm profitability.

In the early 1990s, the FASB became concerned with the method of accounting for share-based compensation, specifically firms were not required to expense stock options on the income statement, which would result in higher operating expenses. The primary concerns related to this issue were that the value of the issued stock options were not recognized as compensation expense on the income statement, although the incentives were a form of compensation. According to prior literature, an accounting standard that does require costs to be recognized results in unreliable financial statements (Carruth, 2011).

As a result of these concerns, in 1993 FASB issued the exposure draft for "Accounting for Stock-Based Compensation," which addressed the recognition of, as compensation expense, and disclosures for stock options in the financial statements. The accounting standard was established to require companies to expense the fair value of stock options in their income statements, resulting in lower net income that properly reflects the expense of share-based compensation. Ultimately, this exposure draft was not approved, which resulted in a 1995 revision of the same standard. This version gave companies the option to use the alternative intrinsic value method for valuing share-based compensation, which measured "the compensation cost as the excess of the market price of the stock over the exercise price of the stock options on the date the options were granted (Carruth 2011, 12)." In addition, firms are required to disclose in the notes to the financial statements the impact of share-based compensation on net earnings if the company adopted the fair value method.

However, the valuation of these share-based incentives are drastically influenced by the trading status of the company, public or private. For a public entity, the fair value of equity, including non-vested shares, is the market price of their stock on the grant date. Additionally, if shares have a restriction on transferability after vesting, the fair value needs to reflect a discounted price. On the other hand, if the company is privately held, it is allowed to use its internal transaction price with a reasonable basis to the grant date fair value (Leahley & Zimmermann, 2007).

Accounting for share-based compensation in this manner, raised concerns related to additional paid in capital (APIC) pools, liability versus equity classification, minimum tax withholdings for public entities, estimating expected forfeitures for privately held entities, and measuring share-based payment awards for privately held companies. Although, ASC 718, *Compensation – Stock Compensation*, issued in 2014, addressed some of the user concerns by requiring recognition of compensation cost for share-based payments in net income (Nichols, Betancourt, & Scott, 2017), there were still lingering concerns about accounting for share-based compensation. As a result, ASU 2016-09 was implemented to simplify the accounting for share-based compensation in specific areas causing the cost and complexity of reporting to decrease without affecting the usefulness of the information provided by the financial statements (Nichols et al., 2017).

ASU 2016-09 will impact many different aspects of the tax reporting in the financial statements. First, it will affect the income tax provision, share-based compensation will be accounted for by recognizing all the tax benefits (deficiencies) as income tax expense in the reporting period in which the compensation occurred. In addition, all excess tax benefits need to be recognized regardless of whether it reduces taxes payable. On the statement of cash flows, the excess tax benefits from the share-based compensation will be reported along with all other income tax cash flows as an operating activity. Similarly, the cash paid by the employer related to tax withholding for share-based compensation will also be classified as a cash flow in the financing activity section of the statement of cash flows.

In order to estimate the amount of tax related to share-based compensation, the company must either estimate the number of awards that are expected to vest or account for the forfeitures when they occur. However, accounting for privately held corporations will be significantly less cumbersome. Nonpublic entities will make an election to estimate the expected time period for all awards with performance or service to meet certain conditions, or they can elect to switch from fair value accounting for all liability classified awards to intrinsic value.

2.2 Share-Based Compensation and Cash Flow Volatility

Under the previous guidance, excess tax benefits were viewed as a financing transaction, and were therefore presented in financing activities on the statement of cash flows. However, this transaction does not involve any cash transfer, it is caused by a reduction in income taxes payable. This reduction is the result of firms deferring income taxes during the vesting period for share-based compensation, which results in the creation of deferred tax assets. In order to properly reflect this non-cash transaction on the statement of cash flows, firms were required to show an inflow in the financing section and an outflow in the operating section related to the income taxes payable (Kim, Morris, & Franco, 2018). The issue with this non-cash transaction is that the difference between the income tax payable and income tax expense needs to be recognized as APIC which can later be transferred into the deferred tax asset account. However, this issue has been resolved under ASU 2016-09. The new standard provides guidance that allows firms to classify the excess tax benefits directly with all the cash flows related to income taxes in the operating activities section of the statement of cash flows.

Previously, the cash inflow and outflow related to share-based compensation was based on hypothetical projections of share-based compensation that was to be granted to employees during a specified time period. This suggests that firms may have been able to artificially reduce cash flow volatility by adjusting their projections. The changes involved with ASU 2016-09 will create a more credible statement of cash flows where the tax benefits (deficits) will be based on the actual share-based compensation issued, which minimizes the opportunity for firms to minimize volatility. Following this line of reasoning, we state our first hypothesis as follows:

H1: The implementation of ASU 2016-09 will significantly increase cash flow volatility.

2.3 Share-Based Compensation and Earnings Volatility

Under previous accounting guidance, excess tax benefits were recognized in APIC and tax deficiencies were recognized as an offset to APIC or as part of earnings (Rashty, 2018). ASU 2016-09 eliminates APIC and all the excess tax deficiencies (benefits) are reflected in current period earnings. As a result, the volatility of earnings is likely to increase due to the elimination of the APIC pool as well as the excess tax benefits and deficiencies. In addition, under the previous accounting guidance for share-based compensation, the excess tax benefits were realized through a reduction to current income taxes payable (Rashty, 2018). This reduction delayed the recognition of any excess tax benefits. Under the new accounting standard, the excess tax benefits (deficiencies) are recognized in earnings which impacts both net income and earnings per share.

Accounting for share-based compensation under ASU 2016-09 is likely to create more earnings volatility given its impact on the company's income statement, through income tax expense, effective tax rate, and earnings per share (Spinelli, 2016). As a result, we expect that this new standard will significantly increase earnings volatility after implementation, and we state our second hypothesis as follows:

H2: The implementation of ASU 2016-09 will significantly increase earnings volatility.

3. Methodology

3.1 Cash Flow and Earnings Volatility Models

Following Edmonds, Edmonds, Leece, & Vermeer (2015), a linear regression model is used to predict the effects of ASU 2016-09 on earnings and cash flow volatility. The following linear regression models are used to measure the relation between the implementation of ASU 2016-09 and cash flow and earnings volatility in testing H1 and H2:

$$\mathrm{VOL}_{i,t} = \beta_0 + \beta_1 \mathrm{ASU}_{i,t} + \beta_2 \mathrm{OPTIONS}_{i,t} + \beta_3 \mathrm{ASU}_{i,t} * \mathrm{OPTIONS}_{i,t} + \gamma_1 \mathrm{LEVERAGE}_{i,t} + \gamma_2 \mathrm{MTB}_{i,t} + \gamma_3 \mathrm{SIZE}_{i,t} + \gamma_4 \mathrm{ACCRUALS}_{i,t} + \gamma_5 \mathrm{EARNTOPRICE}_{i,t} + \boldsymbol{\varepsilon}_{i,t} \quad (1)$$

The dependent variable $\mathrm{VOL}_{i,t}$ is one of two volatility measures, earnings volatility ($\mathrm{EARN\_VOL}_{i,t}$) or cash flow volatility ($\mathrm{CASH\_VOL}_{i,t}$). $\mathrm{EARN\_VOL}_{i,t}$, is measured as the average of the standard deviation of quarterly income before taxes and loan loss provisions (EBITDA) scaled by total assets. $\mathrm{CASH\_VOL}_{i,t}$, is measured as the standard deviation of quarterly operating cash flows scaled by total assets. The remaining variables included in the regression model are measured as follow:

$\mathrm{ASU}_{i,t}$= an indicator variable equal to one if ASU 2016-09 is effective, and zero otherwise;

$\mathrm{OPTIONS}_{i,t}$= an indicator variable equal to one if the number of options awarded is above the sample median, and zero otherwise.

$\mathrm{LEVERAGE}_{i,t}$ = the natural log of total liabilities;

$\mathrm{MTB}_{i,t}$ = the ratio of the market value of equity to the book value of equity;

$\mathrm{SIZE}_{i,t}$ = the natural log of firm *i*'s total assets;

$\mathrm{ACCRUALS}_{i,t}$ = the absolute value of the difference between income before extraordinary items and net operating cash flows;

$\mathrm{EARNTOPRICE}_{i,t}$= the ratio of net income to stock price ratio.

$\mathrm{PPE}_{i,t}$= total property, plant and equipment scaled by total assets.

$\mathrm{ROA}_{i,t}$= net income scaled by average total assets.

3.2 Sample Selection

Financial information necessary to estimate the regression models was obtained from COMPUSTAT. Observations were required to have sixteen consecutive quarters of earnings data in addition to financial data, which resulted in a final sample of 12,511 firm quarter observations.

4. Results

4.1 Descriptive Statistics and Correlations

Table 1 reports descriptive statistics for the full sample over the sample period from 2015 to 2017. The average market-to-book ratio (MTB) and return on assets (ROA) of firms included in the sample are 3.105 and 0.008. In addition, on average property, plant, and equipment (PPE) represents 56.8 percent of total assets in sample firms. The mean cash flow and earnings volatility of firms included in sample are 0.045 and 0.021. We also note that the standard deviation of the cash flow and earnings volatility variables are 0.035 and 0.051, which suggests that there is significant variation in volatility for firms included in the sample.

Table 1. Descriptive Statistics

Variable	Mean	Std. Dev.	Q1	Median	Q3
CASH_VOL	0.045	0.035	0.027	0.038	0.053
EARN_VOL	0.021	0.051	0.005	0.009	0.020
ASU	0.071	0.257	0.000	0.000	0.000
OPTIONS	0.450	0.498	0.000	0.000	1.000
LEVERAGE	0.613	0.279	0.447	0.605	0.738
MTB	3.105	10.651	1.481	2.404	4.071
SIZE	8.146	1.661	6.954	8.048	9.220
ACCRUALS	−0.045	0.082	−0.068	−0.035	−0.009
EARNTOPRICE	−0.016	0.155	0.002	0.010	0.016
PPE	0.568	0.481	0.201	0.433	0.853
ROA	0.008	0.040	0.001	0.011	0.022

This table reports the descriptive statistics for variables used in the regression analysis.

Table 2 presents the Pearson and Spearman correlations for the variables used in the cash flow and earnings volatility models. We find that the implementation of ASU 2016-09 is negatively and significantly associated with cash flow and earnings volatility, which is counter to our expectations. However, this correlation may be the result of a lack of controls. We also note that the correlation coefficient for OPTIONS is significant and positively associated with cash flow volatility, but negatively and significantly associated with earnings volatility.

Table 2. Correlation Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	CASH_VOL		**0.406**	**−0.008**	**0.024**	**−0.256**	**0.250**	**−0.366**	**−0.143**	**0.007**	**0.080**	**0.317**
2	EARN_VOL	**0.344**		**−0.021**	**−0.031**	**−0.099**	**−0.096**	**−0.368**	**−0.201**	**−0.252**	**0.128**	**−0.146**
3	ASU	**−0.026**	**−0.039**		0.067	0.035	**0.047**	**0.056**	**0.156**	**0.035**	**0.001**	**0.046**
4	OPTIONS	**0.016**	**−0.021**	0.067		**0.012**	**0.122**	**0.094**	**0.038**	**−0.003**	**−0.023**	**0.083**
5	LEVERAGE	−0.010	0.058	0.036	**0.024**		0.020	0.433	0.027	**0.013**	**0.081**	**−0.185**
6	MTB	**0.043**	**−0.037**	**0.026**	**0.011**	−0.061		**0.052**	**0.057**	**0.078**	**−0.161**	**0.422**
7	SIZE	**−0.340**	**−0.322**	**0.056**	**0.083**	0.291	**0.027**		**0.114**	**0.141**	**0.014**	**−0.035**
8	ACCRUALS	**−0.062**	**−0.218**	**0.110**	**0.046**	**−0.068**	**0.020**	**0.106**		**0.321**	**−0.286**	**0.261**
9	EARNTOPRICE	**0.016**	**−0.271**	**0.039**	**0.047**	−0.178	**0.032**	**0.072**	**0.472**		**−0.115**	**0.742**
10	PPE	0.012	0.138	**−0.011**	**−0.045**	**0.148**	**−0.059**	**0.014**	**−0.377**	**−0.266**		−0.141
11	ROA	**0.156**	**−0.270**	**0.044**	**0.053**	**−0.140**	**0.045**	**0.057**	0.533	**0.630**	**−0.245**	

Table 3 presents the Pearson and Spearman correlations of all variables used in the regression model. Pearson correlations appear below the diagonal, and Spearman correlations appear above the diagonal. Correlations coefficients significant at least at the 0.05 level appear in bold.

4.2 Cash Flow Volatility Results

Table 3 presents the results of the cash flow volatility regression. Model (1) presents the results of the regression model estimating cash flow volatility over eight quarters, model (2) presents the results estimating cash flow volatility over 12 quarters, and model (3) presents the results estimating cash flow volatility over five years (20 quarters). We find that ASU is positively and significantly related to cash flow volatility in each of the models; however, we do not find a significant relationship between executive stock options (OPTIONS) and cash flow volatility. Additionally, we find that the cash flow volatility of firms that issue more options are not adversely affected by the issuance of ASU 2016-09; specifically, we find that the interaction term between the implementation of ASU 2016-09 and firms issuing options (ASU*OPTIONS) is negative and significant. The findings suggest that overall ASU 2016-09 is associated with higher levels of cash flow volatility, which is consistent with H1; however, the standard results in a reduction of cash flow volatility for firms that issue more stock options.

Table 3. Effect of ASU 2016-09 on Cash Flow Volatility

	CASH_VOL					
	(1)		(2)		(3)	
ASU	0.008	***	0.010	***	0.012	***
	(6.000)		(6.042)		(7.855)	
OPTIONS	0.002		0.002		0.002	
	(1.471)		(1.264)		(1.384)	
ASU*OPTIONS	−0.004		−0.005	*	−0.007	**
	(−1.557)		(−1.723)		(−2.562)	
LEVERAGE	0.019	***	0.023	***	0.023	***
	(3.722)		(3.483)		(3.686)	
MTB	0.000		0.000		0.000	
	(1.174)		(1.271)		(1.105)	
SIZE	−0.006	***	−0.007	***	−0.008	***
	(−8.175)		(−7.886)		(−8.607)	
ACCRUALS	−0.021		−0.015		0.012	
	(−0.756)		(−0.597)		(0.576)	
EARNTOPRICE	−0.011	*	−0.007		−0.013	
	(−1.783)		(−0.877)		(−1.578)	
PPE	0.011	***	0.013	***	0.014	***
	(3.487)		(4.650)		(5.778)	
ROA	0.128	***	0.098	***	0.065	**
	(7.501)		(4.970)		(2.151)	
CONSTANT	0.065	**	0.066	***	0.071	***
	(2.045)		(3.790)		(6.424)	
Observations	12,511		12,511		12,511	
Adj. R-squared	0.257		0.260		0.277	
Year Fixed Effects	Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes	

*, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

This table presents the results of regressing cash flow volatility on the implementation of ASU 2016-09 (ASU) and options awarded (OPTIONS). Model (1) presents the results of the regression model estimating cash flow volatility over eight quarters, model (2) presents the results estimating cash flow volatility over 12 quarters, and model (3) presents the results estimating cash flow volatility over five years (20 quarters). All test statistics and significant levels are estimated based on the standard errors adjusted by a two-dimensional cluster at the firm and year/quarter level. Fixed effects are included for year and industry.

4.3 Earnings Volatility Results

We presents the results of the tests of H2 on the effect of the implementation of ASU 2016-09 and executive stock options on earnings volatility in Table 4. Model (1) presents the results of the regression model estimating earnings volatility over eight quarters, model (2) presents the results estimating earnings volatility over 12 quarters, and model (3) presents the results estimating earnings volatility over five years (20 quarters). We find that ASU is positively and significantly related to earnings volatility in each of the models; however, we do not find a significant relationship between executive stock options and earnings volatility. Additionally, we find that the earnings volatility

of firms that issue more options are not adversely affected by the issuance of ASU 2016-09; specifically, we find that the interaction term between the implementation of ASU 2016-09 and firms issuing options (ASU*OPTIONS) is negative and significant. The findings suggest that overall ASU 2016-09 is associated with higher levels of earnings volatility, which is consistent with H2; however, the standard results in a reduction of earnings volatility for firms that issue more stock options.

Table 4. Effect of ASU 2016-09 on Earnings Volatility

	EARN_VOL					
	(1)		(2)		(3)	
ASU	0.016	***	0.015	***	0.013	***
	(3.554)		(3.930)		(4.293)	
OPTIONS	0.001		0.001		0.000	
	(0.452)		(0.496)		(0.086)	
ASU*OPTIONS	−0.004		−0.005	**	−0.004	*
	(−1.542)		(−1.969)		(−1.840)	
LEVERAGE	0.028	***	0.028	***	0.033	***
	(2.849)		(3.427)		(4.304)	
MTB	0.000		0.000		0.000	
	(1.450)		(1.515)		(0.463)	
SIZE	−0.007	***	−0.007	***	−0.009	***
	(−3.886)		(−4.369)		(−5.727)	
ACCRUALS	0.095		0.077		0.075	*
	(1.632)		(1.610)		(1.665)	
EARNTOPRICE	−0.043	***	−0.034	***	−0.027	***
	(−3.716)		(−3.721)		(−2.812)	
PPE	0.004		0.003		0.004	
	(0.718)		(0.695)		(0.885)	
ROA	−0.272	***	−0.235	***	−0.223	***
	(−37.740)		(−8.941)		(−3.460)	
CONSTANT	0.047	***	0.048	***	0.061	***
	(3.749)		(4.010)		(5.586)	
Observations	12,511		12,511		12,511	
Adj. R-squared	0.195		0.212		0.215	
Year Fixed Effects	Yes		Yes		Yes	
Industry Fixed Effects	Yes		Yes		Yes	

*, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

This table presents the results of regressing earnings volatility on the implementation of ASU 2016-09 (ASU) and options awarded (OPTIONS). Model (1) presents the results of the regression model estimating earnings volatility over eight quarters, model (2) presents the results estimating earnings volatility over 12 quarters, and model (3) presents the results estimating earnings volatility over five years (20 quarters). All test statistics and significant levels are estimated based on the standard errors adjusted by a two-dimensional cluster at the firm and year/quarter level. Fixed effects are included for year and industry.

5. Conclusion

Through the FASB's simplification initiative, the amendment ASU 2016-09 was released in order to simplify the recording of share-based compensation in companies' financial statements. Since 2016, companies such as Facebook, Microsoft, and Amazon have achieved substantial gains by implementing the standard, which may be indicative of potential earnings and cash flow volatility related to the standard. As such, in this study, we examine the impact of the implementation of ASU 2016-09 on cash flow and earnings volatility. The results indicate that ASU 2016-09 results in more cash flow and earnings volatility; however, the relationship is mitigated for firms that issue more stock options.

To the best of our knowledge, this study is one of the first to empirically examine the relationship between the implementation of ASU 2016-09 and volatility in financial statements. However, we also note that no study is without limitations, we note that our study is primarily a practical study and as such may lack some theoretical framework in the development of our argument. Future research should attempt to bridge the gap between theory and practice in examining this area. Our findings contribute to the academic literature involving this amendment and how it affects the earnings and cash flow volatility of companies, as well as the presentation and credibility of the financial statements.

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Notes

Note 1. Excess tax benefits (deficiencies) for equity awards occur when compensation costs from non-qualified share-based compensation recognized on the entity's tax return exceeds (is less than) compensation cost from equity-based compensation recognized in financial statements.

Note 2. Prior to ASU 2016-09, tax deficiencies increased income tax expense unless there was a tax benefit previously reported in additional paid in capital to offset the tax deficiency.

Note 3. The FASB states that their simplification initiative is designed to "identify, evaluate, and improve areas of generally accepted accounting principles (GAAP) for which cost and complexity can be reduced while maintaining or improving the usefulness of the information provided to users of financial statements (FASB, 2016)."