The impact of accounting regulation on non-profit revenue recognition

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Abstract

Purpose – The purpose of this paper is to examine the requirement that non-profit organizations recognize unconditional promises to give as assets and revenues in the year promises are received as mandated by Statement of Financial Accounting Standards (SFAS) No. 116.

Design/methodology/approach – Using the adoption of SFAS No. 116 and financial information reported on Internal Revenue Service Form 990, the study examines the requirement that non-profit organizations recognize unconditional promises to give as assets and revenues in the year promises are received. Combining insights derived from a model developed by Dechow, Kothari and Watts (1998) with the rationale applied by the Financial Accounting Standards Board (FASB) in mandating recognition treatment, it adopts the view that information about promises to give is relevant if it useful in assessing probable future cash inflows. The study also employs relative tests of predictive ability to assess competing specifications.

Findings – The study finds that recognizing unconditional promises to give as assets and as revenues in the year received improves predictions of next period's cash inflows. It also finds that accrual-based contribution revenue consistently provides information content that is incremental to cash-based contribution revenue.

Research limitations/implications – This paper has implications for several other lines of research as well. First, an ancillary concern expressed by many organizations in the non-profit sector was that the recognition of multi-year promises to give would adversely affect trends in long-term giving. In this regard, another promising line of inquiry would be to empirically test the Standard's impact on the time-series properties of contributions and short- and long-term giving trends. Second, future research might consider conducting tests after partitioning by NTEE/NAICS classification, as well as substituting or supplementing the SOI data with financial statement data. Third, future research might consider applying the approach used in this study to other industries or groups for which market prices are not readily ascertainable. Data constraints, including the calculation of cash flow information indirectly from the balance sheet, impose limitations on this study.

Practical implications – This study documents that by recognizing unconditional promises to give as assets and revenues in the period received, donors, creditors and other users gain useful information about probable future cash inflows – a fundamental element of the accrual process and one of several important factors used to evaluate an organization's ability to sustain future operations. This information is valuable to stakeholders and practitioners who rely on this information to make informed decisions. It is also helpful to standard setters in establishing guidelines that improve the usefulness of financial reporting for non-profits.

Originality/value – The paper contributes to existing literature by operationalizing, in a non-profit setting, a model that describes the relationship among revenues, accruals and cash flows. It fills a gap in the accrual literature regarding the relevance of non-profit revenue accruals. The study is the first to employ a relative information content approach to assess non-profit standards, which provides useful input to policy makers and end users. It affirms that many of the key conventions and elements embodied in the FASB Concepts Statements apply to non-profits as well, which heretofore has not been studied extensively. The results are also consistent with Accounting Standards Update 958, Not-for-Profit Entities, which requires that non-profits provide users with information about liquidity, including how they manage liquid resources needed to meet cash requirements for general expenditures within one year of the date of the statement of financial position.

Keywords Financial reporting, Accruals, Revenue recognition, Cash flow prediction, Unconditional promises

Paper type Research paper

JEL Classification — C32, C33, L30, L33, M41

Data availability: data used in this study can be obtained from the public sources identified in the paper.

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1. Introduction

Individuals and corporations give generously to non-profit organizations. As of 2012, non-profits contributed an estimated $887.3bn to the US economy, representing 5.4 percent of the country's gross domestic product. Approximately 1.44m non-profit organizations were registered with the Internal Revenue Service (IRS) in 2012 (McKeever and Pettijohn, 2014). Despite this sector's size and economic significance, its revenue recognition practices have not been examined extensively.

Concerns about the appropriateness of non-profit revenue recognition policies have been the subject of debate since the mid-1970s. Of paramount concern was the diversity in the methods non-profit organizations used to account for charitable contributions. Some charities did not recognize or disclose unconditional promises to give when received, citing uncertainties in realization and measurement difficulties. Others justified a collections approach grounded in the conservatism principle. Those in favor of recognizing unconditional promises argued that promises to give could be measured reliably and that the conservatism principle was, in many instances, being misapplied by non-profit organizations, causing them to inappropriately defer the recognition of revenues or gains beyond the time that adequate evidence of their existence became available. These widespread differences created an undue amount of confusion for current and potential stakeholders (e.g. donors, creditors and other users of financial information), as they typically do not have the ability to directly monitor how a charity received and used it contributions (Derrick, 2013). FASB (1993a), after much deliberation and despite vociferous objections by many non-profit constituents, issued Statement of Financial Accounting Standard (SFAS) No. 116, Accounting for Contributions Received and Contributions Made (the "Standard"). In this paper, I investigate the pronouncement's requirement that non-profit organizations recognize unconditional promises to give as assets and revenues in the period promises are received[1].

Over the past four decades, the USA generally accepted accounting principles applicable to non-profits have converged and are, for the most part, identical to those of for-profit firms. I therefore adopt the view that information about promises to give is relevant if it is useful in assessing probable future cash inflows. This view is based principally on the role of accounting accruals in predicting future cash flows and derives from a model by Dechow *et al.* (1998) (hereinafter referred to as DKW)[2]. Such a view, though not considered extensively in the non-profit setting, is consistent with the rationale of the Financial Accounting Standards Board (FASB) in mandating recognition treatment under the Standard. It is also consistent with Accounting Standards Update (ASU) 958, Not-for-Profit Entities (FASB, 2016), which requires that non-profits provide users with information about liquidity, including how they manage liquid resources necessary to meet cash requirements for general expenditures within one year of the date of the statement of financial position.

Using financial information reported on IRS Form 990, coupled with relative tests of predictive ability (Biddle *et al.*, 1995), I find that recognizing unconditional promises to give as assets and revenues in the period received improves predictions of next period cash inflows. I also find that accrual-based contribution revenue is incrementally useful in predicting future cash inflows from contributions beyond current cash inflows from contributions. My results are timely, given the FASB's assertion in ASU 958 that using the direct method to present operating cash flows is generally more understandable (though not required). They also corroborate the notion that disclosing both accrual- and cash-based information about charitable contributions provides meaningful information to users of non-profit financial statements. My study contributes to the literature in several ways. First, it operationalizes, in a non-profit setting, a model derived from DKW and confirms that current contribution revenue better predicts next period cash inflows than current cash contributions. Second, it is the first to employ a relative information content approach to

assess non-profit standard setting, which provides useful input to policy makers and end users. Third, my research fills a gap in the accrual literature by providing large sample empirical evidence supporting the relevance of non-profit revenue accruals. More specifically, this study documents that by recognizing unconditional promises to give as assets and revenues in the period received, donors, creditors and other users gain useful information about probable future cash inflows. Fourth, my research provides evidence that with regard to the prediction of future cash contribution inflows, accrual-based contribution revenue consistently provides information content that is incremental to cash-based contribution revenue. Such evidence is helpful to standard setters in establishing guidelines that improve the usefulness of financial reporting for non-profits. Last, this study affirms that many of the key conventions and elements of financial reporting described in the FASB Concepts Statements encompass non-profits as well.

The next section provides non-profit institutional background information and describes the reporting environment. Section 3 develops the research design and testable hypotheses. Section 4 presents details on sample description and variable measurement. Section 5 discusses the empirical results. Section 6 concludes.

2. Non-profit institutional background and reporting environment

2.1 Non-profits

Non-profits encompass a significant segment of the economy. They are unique in that they operate as non-governmental entities that are subject to a non-distribution constraint, which mandates that residual profits not be distributed to persons who control the organization, typically officers, employees, directors and founders (Hansmann, 1987). Non-profits' main purpose is to provide benefits that may not otherwise be available through the private and/or government sectors.

From a regulatory perspective, non-profits are policed on both the federal and state levels. Some researchers suggest that regulatory oversight has not kept pace with the explosive growth of the non-profit sector and may be insufficient to ensure that these organizations are meeting their fiduciary obligations (Petrovits *et al.*, 2011). Verbruggen *et al.* (2011) further suggest that the usefulness of financial reporting depends on quality and improved financial transparency. They assert and document that resource dependency and coercive isomorphism play a role in the compliance and reporting process.

2.2 Financial reporting

Non-profit financial reporting attempts to support the diverse needs of constituent users. These users are interested in the ongoing viability of an organization, as well as how efficiently it is meeting its mission and objectives. Parsons (2003) suggests that an important function of accounting and financial reporting is to assist in the analysis and evaluation of organizations. While much is known about how creditors and investors use information in a business setting, less is understood about the role of financial reporting in the non-profit arena. SFAS No. 117, Financial Statements for Not-for-Profit Organizations (FASB, 1993b), changed non-profit financial reporting and also reaffirmed that general-purpose external financial statements should be useful to groups of external users, such as donors and creditors, who generally have similar needs.

FASB (2016, August) issued an ASU (Topic 958, Not-for-Profit Entities), which recommended certain improvements to financial statement presentation[3]. These recommendations included the need for organizations to provide information about liquidity, including how they manage their liquid resources "available to meet cash needs for general expenditures within one year of the date of the statement of financial position." The ASU requires that certain quantitative and qualitative information on liquidity be disclosed, as well as information on operating cash flows under either the direct or indirect method[4].

2.3 Revenue recognition

Before the issuance of SFAS No. 116, there were inconsistencies in the methods non-profits used to account for unconditional promises to give. Stakeholders in favor of recognition argued that promises to give could be measured reliably and that the conservatism principle was, in many instances, being misapplied, causing non-profits to inappropriately defer the recognition of revenues or gains beyond the time that adequate evidence of their existence became available.

Members of the non-profit community countered by arguing that the change would provide information of dubious worth, make entities appear to have excess spendable funds, and incentivize charity managers (who are in the know) to mitigate the effect by restructuring pledge agreements, increasing fund raising to inform donors of the charity's work, or seek alternative sources of revenue (Derrick, 2013).

The FASB ultimately concluded that financial reporting would be improved by recognizing unconditional promises to give in the period received. SFAS No. 116 became effective for financial statements issued for fiscal years beginning after December 15, 1994[5]. To date, research concerning the impact of SFAS No. 116 has been limited (Xiang and Holmes, 2012).

3. Research design and hypothesis development

A contribution represents a voluntary, unconditional transfer of cash or other property from one entity to another entity acting other than as an owner. Its key characteristic is that it represents a non-reciprocal transfer. A promise to give is an agreement, either written or oral, to donate cash or other property to another entity.

SFAC No. 4 describes, in broad terms, the objectives of general-purpose external financial reporting by both non-profit and business enterprises[6]. SFAC No. 6 (FASB, 1985) was specifically expanded to include non-profit organizations. It goes on to define assets as "probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events" (SFAC No. 6, par. 25). Before an asset can be recognized in the financial statements, it must be: measurable, relevant and, based on reliable information, consistent with SFAC No. 5 (FASB, 1984)[7].

SFAC No. 6 defines other concepts that underlie or closely relate to the elements of financial statements. The first, and probably the most significant, is the application of accrual accounting procedures. Accrual accounting recognizes that operations of an entity "are based on not only cash transactions, but also credit transactions, barter exchanges, [and] *nonreciprocal transfers* [emphasis added]" (SFAC No. 6, par. 139).

The FASB determined that unconditional promises to give meet the definition of an asset can be reliably measured, and are relevant. It goes on to state that "information about promises to give, whether received or made, is relevant. Donors, creditors, and other users are interested in *"information about probable future transfers of cash* [emphasis added] or other economic resources." (SFAS No. 116, par. 102). Similarly, ASU Topic 958 includes specific requirements that non-profits provide qualitative and quantitative information on how they manage liquidity needs, specifically the need to meet cash requirements for general expenditures within one year of the balance sheet date.

It follows that recognizing unconditional promises to give should be useful in forecasting an organization's future cash inflows and post-balance-sheet liquidity needs. Thus, contribution revenue computed under SFAS No. 116 is expected, in general, to be a better predictor of future cash inflows from contributions[8].

3.1 Accruals and cash flow predictability as a non-price test

In the for-profit arena, it is widely accepted, since Ball and Brown (1968), that stock prices or returns can serve to assess the efficacy of accounting numbers. However, because

marketable ownership interests (prices) do not exist for non-profit firms, an alternative approach is necessary. Holthausen and Watts (2001) suggest that tests that assess the predictability of future cash flows "may be viewed as a potential alternative to value-relevance studies that depend on price."

3.1.1 Operationalizing the DKW model in a non-profit setting. Dechow (1994) argues that the role of accruals is to overcome problems with measuring performance when firms are in continuous operation. DKW develop a model of earnings, cash flows and accruals, and find that earnings are a better predictor of future operating cash flows and are consistently incrementally useful in forecasting future operating cash flows. DKW also suggest that a further line of inquiry would be to use the model to evaluate the effects of individual accounting standards. This study builds on their suggestion.

3.1.2 Time-series properties of contribution revenue. In the for-profit arena, relying on the for-profit work of Ball and Watts (1972), among others, DKW begin their models with the assumption that revenues follow a random-walk process.

Barragato (2002) modifies the DKW model to make it more descriptive in a non-profit setting and adopts the view that non-profit revenues (contributions) are more fully approximated by an integrated moving average process. He asserts that insofar as non-profit contribution revenues follow a moving average process, accruals still provide useful information beyond current cash inflows in forecasting an entity's future cash flows[9].

Consistent with this discussion, I develop tests on cash flow predictability. I expect current contribution revenue (R_t) to provide a more accurate one-period-ahead forecast of cash inflows from contributions (CIC_{t+1}) than current cash inflows from contributions (CIC_t)[10].

3.2 Testable hypotheses and methodology

3.2.1 Relative tests of predictive ability. With respect to accounting standards setting, questions of relative information content surface when rule makers mandate either/or choices among competing accounting methods. Biddle *et al.* (1995) suggest that relative information content comparisons can provide useful input to policy makers and end users, particularly with regard to weighing the potential benefits against the costs to produce and comply.

In this section, I develop tests to assess the relative ability of current contribution revenue and current cash inflows from contributions to forecast next period's cash inflows from contributions.

To the extent cash inflows generated by non-profit organizations typically suffer from timing problems, accruals should help mitigate these problems, and my empirical results should be consistent with improved cash flow predictability. This leads to my first testable hypothesis, stated in an alternative form:

H1. Current contribution revenue (R_t), on average, predicts next period's cash inflows from contributions (CIC_{t+1}) better than current cash inflows from contributions (CIC_t).

If unconditional promises to give are useful in predicting future cash inflows, the ability of current contribution revenues to predict future cash inflows from contributions should improve under the SFAS No. 116 recognition guidelines. This generates my second testable hypothesis, stated in an alternative form:

H2. Current contribution revenue (R_t) determined under SFAS No. 116 (the "post-regulation" period) will better predict next period's cash inflows from contributions (CIC_{t+1}) than current contribution revenue (R_t) computed under "pre-regulation" period conventions.

To test *H1* and *H2*, I estimate the following univariate cross-sectional regressions:

$$\mathrm{CIC}_{t+1} = \gamma_0 + \gamma_1 R_t + \varepsilon_{t+1}, \quad (1)$$

$$\mathrm{CIC}_{t+1} = \gamma_0 + \gamma_1 \mathrm{CIC}_t + \varepsilon_{t+1}. \quad (2)$$

Relative predictive ability can be inferred by comparing each model's adjusted R^2 in cross-sectional regressions and can be further evaluated using Vuong's (1989) likelihood ratio test for non-nested model selection[11],[12].

3.2.2 Incremental tests of predictive ability. Incremental information content comparisons evaluate whether one accounting measure provides content beyond that provided by another (Biddle *et al.*, 1995).

I expect current contribution revenue to provide information content beyond current cash inflows from contributions. This leads to my third testable hypothesis, stated in an alternative form:

H3. In predicting future cash inflows from contributions (CIC_{t+1}), current contribution revenue (R_t) will provide information content beyond current cash inflows from contributions (CIC_t).

To test *H3*, I estimate the following multivariate cross-sectional regression model:

$$\mathrm{CIC}_{t+1} = \gamma_0 + \gamma_1 R_t + \gamma_2 \mathrm{CIC}_t + \varepsilon_{t+1}. \quad (3)$$

With respect to the multivariate regression model in Equation (3), the incremental predictive abilities of current revenue and current cash inflows from contributions can be inferred by examining the significance of the slope coefficients associated with the independent variables.

3.2.3 Partitioning based on pre-adopter status. In this section, I employ an additional test designed to evaluate whether previous methods are sensitive to calendar-period effects and indirectly assess the impact of SFAS No. 116. As discussed previously, some non-profits chose to recognize unconditional promises as receivables and revenues in the period received ("pre-adopters"). These pre-adopters typically report recognized promises as "pledges receivable" on the balance sheet. According to the FASB, pledges and unconditional promises to give possess similar characteristics[13].

Data are collected on non-profits' pledges receivable, where pre-adopters are defined as organizations that reported pledges receivable in any of the five years preceding the effective date of SFAS No. 116. Tests are then replicated on the pre-adopter group.

4. Sample description and variable measurement

4.1 Data

Data came from the National Center for Charitable Statistics (NCCS). The NCCS obtains data from the IRS based on Form 990 (Return of Organization Exempt from Tax) filed by tax-exempt organizations. Researchers have also used IRS Form 990 returns to investigate a broad spectrum of issues related to the non-profit sector (Froehlich and Knoepfle, 1996). In this study, the IRS Statistics on Income (SOI) files are utilized.

The SOI file includes all 501(c)(3) entities with assets in excess of $10m and a random sample of smaller organizations. Each annual SOI file includes between 10,000 and 11,000 organizations and contains information for more than 300 financial and other variables.

The data in the SOI files are generally considered more reliable because they have been subject to substantial error checking by the staff of the SOI division. Froehlich *et al.* (2000) conclude that Form 990 return data can be considered a reliable source of information for studies incorporating basic balance sheet and income statement entries. Froehlich and Knoepfle (1996) find a greater correlation between tax filings and financial statements for larger organizations (annual revenues greater than $1.3m). Researchers interested in the major non-profit organizations (those with assets in excess of $10m) are recommended to use the SOI files (Gordon *et al.*, 1999).

Burks (2015) examines accounting errors committed by audited public charities and finds that while errors are reported at a rate that is 60 percent higher than those of publicly traded corporations, the errors have low visibility in the financial statements, are reported in the footnotes and often are not mentioned in the auditor reports and IRS Form 990s.

4.2 Sample selection and variable measurement

Financial variables were extracted from IRS SOI files covering the period 1986–2007[14]. SFAS No. 116 became effective for financial statements issued for fiscal years beginning after December 15, 1994. However, non-profit organizations with less than $5m in total assets and $1m in annual expenses were permitted to adopt the pronouncement a year later (fiscal years beginning after December 15, 1995), though early adoption was recommended. As such, I employed several sample selection filters to ensure consistency throughout the post-regulation period. Entities ultimately included in the sample were required to have assets of at least $5m, total expenses of at least $1m and sufficient financial data to compute cash inflows from contributions for each period. Organizations functioning merely as conduits (i.e. total revenues (TR) equal to total expenses) were excluded.

All variables used in the study have been deflated by beginning-of-year total assets to mitigate spurious correlations due to size and to reduce heteroskedasticity (Christie, 1987)[15]. To avoid undue influence from observations with potential errors or with extreme values, observations with the largest and smallest 1 percent values of deflated TR, contribution revenue or cash inflows from contributions were excluded. After application of these restrictions, 105,403 organization-years remained. The final sample is subject to potential survivorship bias and is comprised primarily of entities of substantial size.

Variables are defined as follows on the basis of Form 990 general line descriptions (in parentheses):

- TA = total assets (total assets, beginning of year);
- R = contribution revenue (total charitable contributions);
- TR = total revenues (total revenue);
- PLGE = pledges receivable (pledges receivable);
- GRTREC = grants receivable (grants receivable);
- FUTSUP = deferred contribution revenues (support and revenue designated for future);
- TOTEXP = total expenses (total expenses); and
- CIC_t = cash inflows from contributions, computed as follows:

$$R_t + \mathrm{PLGE}_{t-1} - \mathrm{PLGE}_t + \mathrm{GRTREC}_{t-1} - \mathrm{GRTREC}_t - \mathrm{FUTSUP}_{t-1} + \mathrm{FUTSUP}_t.$$

TR incorporates all revenues derived by non-profit organizations, including, but not limited to, contributions, gifts, investment earnings and related gains and losses, special events, and

gross profit from sales of inventory. Contribution revenue (R) typically includes only amounts received (both cash and non-cash) from contributions, gifts, grants, membership dues from the public and amounts received as indirect public support. Pledges receivable represent amounts recorded on the Form 990 balance sheet and are used to proxy for beginning-of-year and end-of-year unconditional promises to give later in the study's empirical tests[16].

I computed cash inflows from contributions indirectly using balance sheet and income statement amounts. This computation, which is also consistent with the approach used to compute revenue accruals in Derrick (2013), incorporates all the major balance sheet items that typically affect non-profits' cash inflows from charitable contributions and therefore should represent a reasonable proxy for actual cash collections[17].

5. Empirical results

5.1 Descriptive statistics

Table I lists the descriptive statistics for the five primary variables used in this study (in $000s). Panel A presents summary statistics for the full sample, which contains 105,403 organization-year observations[18].

Panel B of Table I presents similar summary statistics for the pre-FASB regulation period, which consists of 32,159 organization-year observations, or approximately 31 percent of the sample. Panel C of Table I presents analogous summary statistics for the post-FASB regulation period, which includes 73,244 organization-year observations, or approximately 69 percent of the sample.

Table II presents descriptive statistics for each of the variables used in the analysis, deflated by beginning-of-year total assets. The reported pre- and post-regulation means, medians and standard deviations reflect patterns that are consistent with their full sample counterparts.

Panel A: 1987–2007 (full sample)

Variable $n = 105{,}403$	Mean	Median	SD
Total revenues	82,236	24,422	258,975
Total assets	149,046	50,312	687,114
Contribution revenue	10,876	1,548	58,175
Cash inflows from contributions[b]	10,870	1,671	58,410
Total expenses	74,559	21,199	236,206

Panel B: 1987–1994 (pre-FASB regulation)

Variable $n = 32{,}159$	Mean	Median	SD
Total revenues	59,821	22,104	150,325
Total assets	91,463	37,662	260,178
Contribution revenue	7,374	1,136	32,075
Cash inflows from contributions[b]	7,452	1,207	32,120
Total expenses	55,115	19,578	140,689

Panel C: 1995–2007 (post-FASB regulation)

Variable $n = 73{,}244$	Mean	Median	SD
Total revenues	92,078	25,490	293,729
Total assets	174,328	56,572	804,740
Contribution revenue	12,414	1,785	66,415
Cash inflows from contributions[b]	12,371	1,914	66,703
Total expenses	83,096	22,002	267,136

Notes: [a]Observations falling in the top or bottom 1 percent of deflated total revenue, deflated contribution revenue, or deflated cash inflows from contributions are excluded; [b]Cash Inflows From Contributions$_t$ = Contribution Revenue$_t$ + PLGE$_{t-1}$ − PLGE$_t$ + GRTREC$_{t-1}$ − GRTREC$_t$ − FUTSUP$_{t-1}$ + FUTSUP$_t$

Table I. Descriptive statistics: selected variables used in the analysis[a] (in $000s)

Panel A: 1987–2007 (full sample)			
Variable $n = 105{,}403$	Mean	Median	SD
Total revenues	0.684	0.570	0.525
Contribution revenue	0.112	0.034	0.213
Cash inflows from contributions[b]	0.112	0.037	0.211
Pledges receivable	0.022	0.000	0.074
Grants receivable	0.006	0.000	0.041
Future support	0.027	0.000	0.093
Total expenses	0.637	0.515	0.526
Panel B: 1987–1994 (pre-FASB regulation)			
Variable $n = 32{,}159$	Mean	Median	SD
Total revenues	0.725	0.650	0.494
Contribution revenue	0.103	0.032	0.190
Cash inflows from contributions[b]	0.106	0.036	0.191
Pledges receivable	0.015	0.000	0.074
Grants receivable	0.005	0.000	0.038
Future support	0.028	0.000	0.104
Total expenses	0.675	0.598	0.492
Panel C: 1995–2007 (post-FASB regulation)			
Variable $n = 73{,}244$	Mean	Median	SD
Total revenues	0.666	0.532	0.537
Contribution revenue	0.115	0.035	0.222
Cash inflows from contributions[b]	0.115	0.038	0.219
Pledges receivable	0.025	0.000	0.074
Grants receivable	0.007	0.000	0.042
Future support	0.027	0.000	0.089
Total expenses	0.620	0.480	0.540

Table II.
Descriptive statistics: scaled variables used in the analysis[a]

Notes: [a]All observations are deflated by beginning-of-year total assets: observations falling in the top or bottom 1 percent of total revenue, contribution revenue or cash inflows from contributions are excluded; [b]Cash Inflows From Contributions$_t$ = Contribution Revenue$_t$ + PLGE$_{t-1}$ – PLGE$_t$ + GRTREC$_{t-1}$ – GRTREC$_t$ – FUTSUP$_{t-1}$ + FUTSUP$_t$

Table III presents Pearson and Spearman correlations for the deflated variables. Panels A, B and C report results for the overall, pre-FASB and post-FASB regulation periods, respectively. Correlations are consistent across all three panels. The correlation between contribution revenue and cash inflows from contributions is notable. Because these two highly correlated variables play a key role in the multivariate regression tests conducted later in this section, some further diagnostics are computed to assess the presence of collinearity following Belsley *et al.* (1980). Untabulated results computed for contribution revenue and cash inflows from contributions suggest that collinearity should not impede the detection of incremental explanatory power in multivariate regression tests. Correlations among all remaining variables are not extreme. Correlations in Panels B and C (pre- and post-regulations periods, respectively) are consistent with the full sample results.

5.2 Tests of H1 and H2: full sample

Table IV presents pooled cross-sectional regression results for the full sample. Univariate results of estimating the current contribution revenue specification (Equation (1)) are reported for the overall, pre-regulation and post-regulation periods. The slope coefficients are all positive and significant in predicting next period's cash inflows from contributions, with the slope in the post-regulation period (0.828) representing the largest of the three values[19]. Reported adjusted R^2 values are 0.664 (overall), 0.548 (pre) and 0.705 (post).

Panel A: 1987–2007 (full Sample)

Variable $n = 105{,}403$	Total revenues	Contribution revenue	Cash inflows from contributions	Pledges receivable	Grants receivable	Future support	Total expenses
Total revenues	–	*−0.062*	*−0.073*	*−0.188*	*0.025*	*−0.076*	*0.972*
Contribution revenue	*0.152*	–	*0.960*	*0.464*	*0.315*	*0.269*	*−0.110*
Cash inflows from contributions[c]	*0.145*	*0.978*	–	*0.436*	*0.298*	*0.316*	*−0.113*
Pledges receivable	*−0.042*	*0.400*	*0.353*	–	*0.130*	*0.272*	*−0.210*
Grants receivable	*0.064*	*0.320*	*0.295*	0.001	–	*0.171*	*0.024*
Future support	*−0.034*	*0.118*	*0.168*	*0.175*	*0.168*	–	*−0.065*
Total expenses	*0.982*	*0.117*	*0.117*	*−0.066*	*0.057*	*−0.028*	–

Panel B: 1987–1994 (pre-FASB regulation)

Variable $n = 32{,}159$	Total revenues	Contribution revenue	Cash inflows from contributions	Pledges receivable	Grants receivable	Future support	Total expenses
Total revenues	–	*−0.151*	*−0.161*	*−0.054*	0.0017*	*−0.133*	*0.981*
Contribution revenue	*0.064*	–	*0.972*	*0.293*	*0.309*	*0.356*	*−0.187*
Cash inflows from contributions[c]	*0.056*	*0.982*	–	*0.284*	*0.296*	*0.400*	*−0.192*
Pledges receivable	*−0.021*	*0.418*	*0.399*	–	*0.090*	*0.241*	*−0.060*
Grants receivable	*0.036*	*0.292*	*0.280*	−0.003	–	*0.193*	*0.018*
Future support	*−0.035*	*0.308*	*0.358*	*0.524*	*0.273*	–	*−0.130*
Total expenses	*0.987*	*0.037*	*0.033*	*−0.025*	*0.037*	*−0.031*	–

Panel C: 1995–2007 (post-FASB regulation)

Variable $n = 73{,}244$	Total revenues	Contribution revenue	Cash inflows from contributions	Pledges receivable	Grants receivable	Future support	Total expenses
Total revenues	–	*−0.024*	*−0.036*	*−0.203*	*0.030*	*−0.037*	*0.967*
Contribution revenue	*0.185*	–	*0.954*	*0.536*	*0.318*	*0.233*	*−0.077*
Cash inflows from contributions[c]	*0.178*	*0.976*	–	*0.502*	*0.299*	*0.282*	*0.080*
Pledges receivable	*−0.045*	*0.395*	*0.336*	–	*0.137*	*0.247*	*−0.233*
Grants receivable	*0.076*	*0.329*	*0.299*	0.001	–	*0.158*	*0.029*
Future support	*−0.035*	*0.037*	*0.086*	−0.005	*0.120*	–	*−0.022*
Total expenses	0.981	*0.146*	*0.148*	*−0.078*	*0.066*	*−0.027*	–

Notes: [a]All observations are deflated by beginning-of-year total assets: observations falling in the top or bottom 1 percent of total revenue, contribution revenue or cash inflows from contributions are excluded; [b]correlations in italics are significant at p-value < 0.0001: all others insignificant unless otherwise noted; [c]Cash Inflows From Contributions$_t$ = Contribution Revenue$_t$ + PLGE$_{t-1}$ − PLGE$_t$ + GRTREC$_{t-1}$ − GRTREC$_t$ − FUTSUP$_{t-1}$ + FUTSUP$_t$. Pearson (Spearman) correlations below (above) the diagonal. *p-value < 0.003

Table III.
Correlations among variables[a,b]

Table IV also reports the univariate results of estimating the cash inflows from contributions specification (Equation (2)). The coefficients in the overall, pre-regulation and post-regulation periods are also positive and significant, with corresponding adjusted R^2 values of 0.653, 0.532 and 0.698, respectively. As predicted, these values are less than their counterparts from Equation (1), suggesting that the current contribution specification has more explanatory power.

To formally discriminate between these two competing models, I employed Vuong's likelihood ratio test, which produced positive and significant Vuong Z-statistics of 6.69, 6.53 and 3.76 (in the overall, pre-regulation and post-regulation periods, respectively), which indicate that the current cash inflows from contribution specification is consistently rejected in favor of the current contribution revenue specification. This evidence supports *H1*.

Forecast years	n	Future Cash Inflows from Contributions (CIC_{t+1}) on Current Contribution Revenue (R_t) (Equation (1))[b,c] $CIC_{t+1} = \gamma_0 + \gamma_1 R_t + \varepsilon_{t+1}$ $\gamma 0$	$\gamma 1$	Adj. R^2	Future Cash Inflows from Contributions (CIC_{t+1}) on Current Cash Inflows from Contributions (CIC_t) (Equation (2))[b,c] $CIC_{t+1} = \gamma_0 + \gamma_1 CIC_t + \varepsilon_{t+1}$ $\gamma 0$	$\gamma 1$	Adj. R^2	Future Cash Inflows from Contributions (CIC_{t+1}) on Current Contribution Revenue (R_t) and Current Cash Inflows from Contributions (CIC_t) (Equation (3))[b,c] $CIC_{t+1} = \gamma_0 + \gamma_1 R_t + \gamma_2 CIC_t + \varepsilon_{t+1}$ $\gamma 0$	$\gamma 1$	$\gamma 2$	Adj. R^2
1987–2007	105,403	0.022	0.803	0.664	0.022	0.803	0.653	0.021	0.546	0.265	0.667
OLS		*52.28*	*456.14*		*50.36*	*445.77*		*49.96*	*65.21*	*31.34*	
White's[d]		*47.05*	*154.87*		*45.03*	*152.26*		*44.59*	*26.43*	*12.76*	
Fama and MacBeth[d]		*9.90*	*39.39*		*9.03*	*36.65*		*9.10*	*13.73*	*5.29*	
Vuong's *Z*-Stat				*6.69*							
(Pre-FASB)											
1987–1995	32,159	0.029	0.728	0.548	0.030	0.713	0.532	0.029	0.664	0.065	0.548
OLS		*36.56*	*197.30*		*35.73*	*191.23*		*36.17*	*33.37*	*3.26*	
White's[d]		*31.26*	*66.04*		*30.42*	*64.31*		*30.69*	*17.15*	1.71*	
Fama and MacBeth[d]		*4.97*	*15.39*		*4.87*	*15.17*		*4.86*	*16.85*	2.07**	
Vuong's *Z*-Stat				*6.53*							
(Post-FASB)											
1996–2007	73,244	0.019	0.828	0.705	0.019	0.835	0.698	0.018	0.509	0.332	0.710
OLS		*39.27*	*418.43*		*37.71*	*411.21*		*36.89*	*56.10*	*36.13*	
White's[d]		*36.04*	*61.24*		*34.45*	*142.30*		*33.68*	*21.26*	*13.74*	
Fama and MacBeth[d]		*11.42*	*14.31*		*8.57*	*54.30*		*10.04*	*11.40*	*8.36*	
Vuong's *Z*-Stat				*3.76*							

Notes: OLS, ordinary least squares. [a]All observations are deflated by beginning-of-year total assets: observations falling in the top or bottom 1 percent of total revenue, contribution revenue or cash inflows from contributions are excluded; [b]H_0 = the competing models are equally close to the true data-generating process vs *H1* = one model is closer to the true data-generating process; [c]a *Z*-statistic that is positive and significant (italic denotes significance at *p*-value < 0.0001) suggests that model 1 (Equation (1)) is closer to the true generating process vs model 2 (Equation (2)): a negative and significant *Z*-statistic suggests the opposite is true; [d]*t*-statistics replicated following White (1980) and Fama and MacBeth (1973): italic denotes statistical significance at *p*-value < 0.0001 (two-sided test) except as noted. *p-value < 0.09; **p-value < 0.08

Table IV.
Pooled cross-sectional regressions[a]

H2 asserts that current contribution revenue determined under SFAS No. 116 (the post-regulation period) will better predict next period's cash inflows from contributions. A comparison of pre- and post-regulation adjusted R^2s generated by estimating Equation (1) finds support for this assertion. More specifically, the post-regulation adjusted R^2 is approximately 29 percent greater than its pre-regulation counterpart, suggesting that the association improved as a result of the change in reporting, consistent with *H2*.

5.3 Tests of H3: full sample

I evaluate the incremental predictive abilities of current contribution revenue and current cash inflows from contributions in a multivariate setting by estimating Equation (3). Table IV reflects the pooled results. Significant and positive slope coefficients are reported for current contribution revenue and current cash inflows from contributions in the overall (0.546 and 0.265), pre- (0.664 and 0.065) and post- (0.509 and 0.332) periods, suggesting that both variables are incrementally useful in predicting future cash inflows from contributions. My results are consistent with *H3*.

5.4 Additional test: partitioning based on pre-adopter status

To investigate whether the results presented thus far are sensitive to calendar-period effects and to indirectly assess the impact of SFAS No. 116, I filter the organizations in the sample according to their pre-adopter status. Partitioning the data in this way produced 24,397 organization-year observations and allows me to more fully isolate the impact of recording pledges (a surrogate for unconditional promises to give). I then replicate my tests on this sub-group.

Table V reports the univariate pooled cross-sectional regression results for the pre-adopter group. Overall, the findings remain consistent with those of the full sample (Table IV). Compared with its full sample counterparts, the pre-adopter group produced more robust results, with greater adjusted R^2 values and slopes of a larger magnitude. Vuong *Z*-statistics for the competing specifications also remain consistent with those of the full sample.

5.5 Robustness checks

5.5.1 Non-articulation of balance sheet and income statement items. Sloan (1996), as well as a number of other for-profit studies, tests the pricing of accruals using a period-to-period

	Future Cash Inflows from Contributions (CIC_{t+1}) on Current Contribution Revenue (R_t) (Equation (1))[b,c] $CIC_{t+1} = \gamma_0 + \gamma_1 R_t + \varepsilon_{t+1}$				Future Cash Inflows from Contributions (CIC_{t+1}) on Current Cash Inflows from Contributions (CIC_t) (Equation (2))[b,c] $CIC_{t+1} = \gamma_0 + \gamma_1 CIC_t + \varepsilon_{t+1}$			Future Cash Inflows from Contributions (CIC_{t+1}) on Current Contribution Revenue (R_t) and Current Cash Inflows from Contributions (CIC_t) (Equation (3))[b,c] $CIC_{t+1} = \gamma_0 + \gamma_1 R_t + \gamma_2 CIC_t + \varepsilon_{t+1}$			
Forecast years	*n*	$\gamma 0$	$\gamma 1$	Adj. R^2		$\gamma 0$	$\gamma 1$	Adj. R^2	$\gamma 0$	$\gamma 1$	$\gamma 2$	Adj. R^2
1987–2007	24,397	0.024	0.829	0.73		0.025	0.834	0.71	0.023	0.590	0.251	0.73
OLS		*27.55*	*253.53*			*27.53*	*242.64*		*26.16*	*44.07*	*18.38*	
White's[d]		*23.54*	*96.88*			*23.09*	*92.99*		*22.13*	*17.73*	*7.42*	
Fama and MacBeth[d]		*6.13*	*41.97*			*5.71*	*38.74*		*5.37*	*9.44*	*5.26*	
Vuong's *Z*-Stat					*4.67*							
(Pre-FASB)												
1987–1994	8,934	0.039	0.798	0.64		0.0339	0.785	0.62	0.039	0.674	0.125	0.64
OLS		*22.60*	*126.27*			*22.24*	*121.39*		*22.20*	*21.77*	*4.04*	
White's[d]		*19.72*	*54.67*			*19.53*	*52.85*		*19.30*	*12.01*	2.27*	
Fama and MacBeth[d]		*4.29*	*23.18*			*4.37*	*23.38*		*4.10*	*15.60*	2.10**	
Vuong's *Z*-Stat					*4.25*							
(Post-FASB)												
1995–2007	15,463	0.016	0.847	0.78		0.017	0.865	0.77	0.014	0.561	0.306	0.79
OLS		*16.36*	*235.88*			*16.62*	*224.62*		*14.76*	*41.7*	*22.03*	
White's[d]		*13.71*	*80.76*			*13.34*	*77.45*		*12.19*	*13.54*	*7.16*	
Fama and MacBeth[d]		*8.24*	*42.17*			*4.47*	*41.35*		*6.51*	*6.36*	*8.27*	
Vuong's *Z*-Stat					*2.96***							

Notes: OLS, ordinary least squares. [a]All observations are deflated by beginning-of-year total assets: observations falling in the top or bottom 1 percent of total revenue, contribution revenue or cash inflows from contributions are excluded; [b]H_0 = the competing models are equally close to the true data-generating process vs *H1* = one model is closer to the true data-generating process; [c]a *Z*-statistic that is positive and significant (italic denotes significance at *p*-value < 0.0001, except as noted) suggests that model 1 (Equation (1)) is closer to the true generating process vs model 2 (Equation (2)): a negative and significant *Z*-statistic suggests the opposite is true; [d]*t*-statistics replicated following White (1980) and Fama and MacBeth (1973): italic denotes statistical significance at *p*-value < 0.0001 (two-sided test), except as noted. *p-value < 0.07; **p-value < 0.08; ***p-value < 0.003

Table V.
Pre-adopter pooled cross-sectional regressions[a]

analysis of working capital accounts to estimate the accrual component of earnings. Drtina and Largay (1985) and Collins and Hribar (2002) demonstrate that using such a balance sheet approach may lead to significant errors if a firm has been a party to a merger, acquisition, or divestiture. This study uses a balance sheet approach to compute cash inflows from contributions. To ensure that a similar non-articulation problem in the SOI data set did not affect the previous results, I re-estimate the pooled regressions, excluding all organizations that have a more than 10 percent difference between period $t-1$ ending total assets and period t beginning total assets. Dropping these organizations from the analysis would likely capture any entity that was involved in a merger, acquisition or divestiture of a for-profit operation (pooling), though it is equally likely that employing such a filter will exclude firms that were not involved in any of these transactions. However, there is no way to identify such firms in the SOI data set. Untabulated results for 92,355 organization-year observations remain qualitatively unchanged.

5.5.2 Additional results. The results presented thus far are based on a pooling of observations across organizations and across time. To ensure that reported t-statistics are not unduly overstated due to time-series correlation, I re-estimated all regressions by year. The signs and significance of the annual slope coefficients (unreported) remain consistent with those of the pooled results.

6. Conclusions and implications for future research

I investigate the impact of accounting regulation on non-profit revenue recognition, an area that has remained virtually unexplored in the literature. Specifically, my study examines SFAS No. 116's requirement that non-profit organizations recognize unconditional promises to give as assets and revenues in the year promises are received. I hypothesize that recognizing unconditional promises to give as assets and revenues in the period received enhances the ability of current contribution revenue to predict next period's cash inflows from contributions. Using financial information reported on IRS Form 990, coupled with the use of relative tests of predictive ability, the study's results are consistent with this prediction and are also robust to a variety of alternative tests. The study affirms that unconditional promises to give provide relevant information about probable future transfers of cash or other economic resources to stakeholders (e.g. donors, creditors and other users). This information is useful in assessing an entity's financial position and ability to generate public support and continue to operate. Additionally, the study documents that accrual-based contribution revenue consistently provides one-period-ahead information content that is incremental to cash-based contribution revenue. These findings are consistent with ASU Topic 958, which includes specific requirements that non-profits provide qualitative and quantitative information on how they manage liquidity needs, specifically the need to meet cash requirements for general expenditures within one year of the balance sheet date.

This study makes several contributions to the literature. First, it operationalizes, in a non-profit setting, the relationship among revenues, accruals and cash inflows, which implies that accrual-based contribution revenue better predicts future cash inflows from contributions than cash-based contribution revenue. Second, I document that by recognizing unconditional promises to give as assets and revenues in the period received, non-profit organizations provide useful information to their stakeholders regarding probable future cash inflows. Third, the findings provide evidence that with respect to predictions of future cash contribution inflows, accrual-based contribution revenue consistently provides information content that is incremental to cash-based contribution revenue. This evidence is useful to standard setters in establishing guidelines to improve the presentation of financial statements for non-profit entities. Fourth, the results affirm that many of the key conventions and elements embodied in the FASB Concepts Statements are applicable to

non-profits as well. They are also consistent with ASU 958, Not-for-Profit Entities, which requires that non-profits provide information to users about liquidity, including how they manage liquid resources necessary to meet cash requirements for general expenditures within one year of the date of the statement of financial position. Last, this study is the first to employ a relative information content approach to assess non-profit standards setting, which provides useful input to policy makers and end users.

This paper has several limitations that warrant further discussion. Data constraints imposed restrictions on the study. The SOI files, though adequate and reliable in many respects, do not provide cash flow information. I therefore was required to calculate cash flow information indirectly from the balance sheet, which may introduce measurement error. In addition, because SFAS No. 116 became generally effective for years beginning after December 15, 1994, more stringent sample selection criteria were required to ensure consistent testing in the post-regulation period. The use of these criteria, however, creates a bias toward larger organizations.

This paper has implications for several other lines of research as well. First, an ancillary concern expressed by many organizations in the non-profit sector was that the recognition of multi-year promises to give would adversely affect trends in long-term giving. In this regard, another promising line of inquiry would be to empirically test the Standard's impact on the time-series properties of contributions and short- and long-term giving trends. Second, future research might consider conducting tests after partitioning by NTEE/NAICS classification, as well as substituting or supplementing the SOI data with financial statement data. Third, future research might consider applying the approach used in this study to other industries or groups for which market prices are not readily ascertainable.

Notes

1. An unconditional promise to give is a promise (or "pledge") that depends only on the passage of time or demand by the promisee for performance.
2. See also Dechow (1994), Barth *et al.* (2001), Barragato (2002), Barragato and Basu (2007), Barth *et al.* (2016) and Khansalar and Namazi (2017).
3. The amendments are effective for annual financial statements beginning after December 15, 2017, and for interim periods within fiscal years beginning after December 15, 2018.
4. The initial FASB proposal would have mandated use of the direct method. Although the general consensus during FASB roundtable discussions was that the indirect method is not well understood and the direct method is superior, the requirement was relaxed in response to stakeholder comments citing additional implement costs, particularly for small- and medium-sized non-profits.
5. The effective date for non-profits with less than $5m in total assets and $1m in annual expenses was December 15, 1995; however, earlier adoption was encouraged.
6. For a comprehensive review of this area, see Budig *et al.* (1992).
7. The foregoing presupposes that cost-benefit constraints and materiality thresholds have been overcome.
8. For purposes of this analysis, the term "cash inflows" equates to revenues generated by contributions and their corresponding cash inflows.
9. See also Barragato and Basu (2007), who examine the properties of non-profits' surplus margin and change in net assets and find that they have a slight mean-reverting tendency and that they display asymmetric persistence, similar to results documented for profit-seeking enterprises (Basu, 1997).

10. The approach used herein can be extended to other industries or entities for which market prices are not readily available (e.g. private firms, quasi-governmental organizations, divisions of firms).
11. Brown *et al.* (1999) suggest that R^2 values may vary, in part, to scale effects that may differ from sample to sample. They caution that between-sample comparisons of R^2 may be invalid unless analysts control for the scale factor's coefficient of variation. In this study, all variables are scaled by beginning-of-year total assets. Untabulated statistics indicate that this scaling variable's coefficient of variation is relatively stable throughout the sample period.
12. For consistency with Dechow (1994) and Barth *et al.* (2001), I employ Vuong's likelihood ratio test for model selection. Alternatively, Biddle *et al.* (1995) develop a regression-based test, which is also well suited for relative information content comparisons.
13. The 1990 Exposure Draft used the term "pledges" to describe a promise to give, as do health care services and health and welfare Guides and SOP 78-10. However, some respondents to the Exposure Draft said that they use the term to describe not only promises but also other intentions to give that are not promises. Although the FASB believes that most pledges are promises to give, the term "pledge" is avoided because it may be misinterpreted (SFAS No. 116, par. 89).
14. On December 20, 2007, the IRS released new Form 990, which became effective for the 2008 tax year. The revised Form 990 completely redesigned the basic structure of the form. Although SOI data are currently available through 2011, I only include data through 2007 to ensure consistency throughout the study period (see www.irs.gov/pub/irs-tege/overview__form__990__redesign.pdf).
15. All inferences remain qualitatively unchanged deflating by total revenues.
16. The instructions for Form 990 have consistently required that other types of receivables be categorized on separate lines of the tax return (i.e. accounts receivable from the sale of goods and/or services, grants receivable, and other notes receivable), which further strengthens the use of this line item as a proxy for unconditional promises to give.
17. Determining cash flows indirectly may introduce measurement error, which can bias reported associations (Dechow, 1994). Measurement error could also affect this study insofar as material balance sheet items are inappropriately excluded or included in the indirect computation of cash inflows (principally discretionary year-to-year line item groupings and/or reclassifications on the tax return, as determined by the tax return preparer).
18. The minimum values (untabulated) for total assets and total expenses are consistent with the sample selection criteria minimums of $5m and $1m, respectively.
19. The coefficient values reported range from 0.728 to 0.828. As previously discussed in Section 4, the true time-series behavior of revenues for non-profit organizations has yet to be documented. However, if the underlying process was indeed more closely associated with a random walk, the aforementioned coefficient values should be closer to their theoretical values of 1. Some potential explanations for these deviations include (1) measurement error in computing cash inflows from contributions; (2) insufficient data partitioning, which in turn would exacerbate the presumption of inter-firm homogeneity in cross-sectional regressions; and (3) a more complex time-series process.

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