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The Effect of Mandated Disclosure on Liquidity Among Not-for-Profit Organizations

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THE EFFECT OF MANDATED DISCLOSURE ON LIQUIDITY AMONG NOT-FOR-PROFIT ORGANIZATIONS

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ABSTRACT

This study examines whether mandated disclosure under Accounting Standards Update (ASU) 2016-14 affects not-for-profit (NFP) liquidity. ASU 2016-14 requires NFPs to disclose information that enhances financial statement users' ability to assess an organization's liquidity. Using panel data from fiscal years 2014 through 2019, I compare liquidity before and after the mandated disclosure for the top 100 revenue generating NFPs in 2019. I find that NFPs manage operating reserves, i.e., unrestricted liquid net assets, more closely to NFP sector guidelines after the disclosure mandate. Specifically, I find that NFPs with operating reserves above the recommended range prior to the disclosure mandate significantly decrease reserves after the disclosure change when considering fiscal years 2014 to 2019. In contrast, NFPs with operating reserves below the recommended range prior to the disclosure mandate significantly increase reserves after the disclosure change when considering a shorter sample period, fiscal years ended in December 31, 2016, to November 30, 2019. The results of this study add to the NFP literature on operating reserves and liquidity management and expand our understanding of the economic consequences of accounting standards.

DEDICATION

For you, Dad. Live big.

LIST OF ABBREVIATIONS AND SYMBOLS

AIP	American Institute of Philanthropy
ASU	Accounting Standard Update
BBB	Better Business Bureau
ERR	Expected Rate of Return
FASB	Financial Accounting Standards Board
GAAP	Generally Accepting Accounting Principles
LUNA	Liquid Unrestricted Net Assets
NAC	Nonprofit Advisory Council
NFP	Not-for-Profit
NORI	Nonprofit Operating Reserves Initiative
NTEE-CC	National Taxonomy of Exempt Entities – Core Codes
ORR	Operating Reserve Ratio
SEC	Securities and Exchange Commission
SFAS	Statement of Financial Accounting Standards
SOI	Statistics of Income

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I. INTRODUCTION

In 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-14, *Presentation of Financial Statements of Not-for-Profit (NFP) Entities,* the first major change to NFP financial reporting in over twenty years. One provision of ASU 2016-14 requires NFPs to disclose quantitative and qualitative information on the liquidity and availability of resources (FASB 2016). Using panel data from fiscal years 2014 to 2019, this study examines whether the mandated NFP liquidity disclosure affects organizational liquidity. Overall, I find that NFP operating reserves i.e., unrestricted liquid net assets, more closely align with NFP sector guidelines after the mandated liquidity disclosure.

The NFP sector is large, contributing $1.05 trillion to the U.S. economy (5.6% of GDP) in 2016 (NCCS 2019). In addition, NFPs play a vital role in society by providing critical services to benefit the public and strengthen communities across the country. Despite the sector's financial and societal importance, research suggests many NFPs do not hold sufficient levels of available liquid assets, i.e., operating reserves (NORI 2008; Blackwood and Pollak 2009; Calabrese 2013; BDO 2019; NFF 2022). Accounting firm BDO's *2019 Nonprofit Standards* finds that 63% of NFPs surveyed have less than the recommended six months of operating costs in reserves, and 33% only have between 0 to 4 months on hand. NFPs with little or no liquid assets are operating month-to-month and are ultimately at risk of survival. New York's Federation Employment and Guidance Services (FEGS), one of the state's largest and oldest NFPs, shocked the nonprofit sector in 2015 by announcing a $19 million deficit, closing its programs, and filing for bankruptcy in just a matter of months. Adam Cole, a National

Partner of Nonprofit and Education Practice at BDO accounting firm, states, "…the financial problem that ultimately caused the downfall of this established and otherwise successful organization (is) a lack of transparency and understanding around the entity's liquidity and cash flow" (Cole 2016).

At the other extreme, Calabrese (2011) finds that approximately 14% of NFPs maintain over three years of expenses in liquid assets, with 4% maintaining over ten years of expenses. CharityWatch, a NFP charity rating agency, cautions NFPs against holding excessive assets, stating,

> "Giving is a fixed pie, remaining steady at about 2% of gross domestic product (GDP) for over four decades. Because charitable dollars are limited and society's needs are not, it is vital that charities do not hoard the funds they raise... Charities that hoard donations are in some cases ignoring the intentions of donors who contributed in response to a solicitation for a charity's current programs, not programs that might be conducted five, eight, or even ten years in the future" (CharityWatch).

NFPs that appear too liquid are subject to increased scrutiny, which could potentially harm a NFP's reputation. A recent press article criticizes St. Jude Children's Research Hospital for reportedly holding $5.2 billion (over four years of current operations) in reserves (Armstrong and Gabrielson 2021). The article suggests that the NFP is inappropriately hoarding excessive amounts of donations rather than spending them on organizational programs in the period they are received.

A focus on liquidity is vital for the success of NFP organizations, second only to the organization's mission (Zietlow 2007). Asset accumulation is beneficial to reduce financial vulnerability, yet the success of a NFP is based on the advancement of its mission rather than

financial gain. Thus, NFP managers face critical decisions between "money and mission" when determining whether to spend or save resources. NFP practitioners and charity watch agencies recommend that NFP organizations maintain appropriate levels of operating reserves to serve as a "rainy day fund." While the level of reserves should be based on the risks and characteristics of individual organizations, a general rule of thumb of the NFP sector is that organizations maintain a minimum of three to six months, but no more than two to three years of annual expenses (NORI 2008; Candid(b); BDO; BBB; CharityWatch).

ASU 2016-14 was issued, in part, to enhance NFP financial statement users' ability to assess an organization's liquidity (FASB 2016). NFPs are not required to issue a classified Statement of Financial Position but are required to present assets and liabilities in order of liquidity.[1] However, because donors can restrict funds for specific uses or time frames, NFPs may have assets that appear liquid but are restricted by the donor. NFPs must report net assets with and without donor restrictions only in total. Thus, using the Statement of Financial Position, it is difficult to determine which resources are both current and unrestricted. The ASU 2016-14 liquidity disclosure now requires NFPs to quantitatively disclose the availability of assets to meet operations within the next year and qualitatively disclose liquidity risks and policies (FASB 2016).

Prior disclosure literature that examines for-profit organizations provides evidence on the economic consequences of accounting disclosures (reviewed in Beyer et al. 2010). Roychowdhury et al. (2019) provides two potential reasons mandated disclosures affect managerial decisions: 1) reducing information asymmetry between insiders and outsiders; and 2)

[1] NFP financial statements include Statement of Financial Position (Balance Sheet), Statement of Activities (Income Statement), and Statement of Cash Flows. NFP business-oriented healthcare entities are required to provide a classified Statement of Financial Position.

reducing information uncertainty among insiders. Managers of NFPs have access to information stakeholders do not and serve both donors (who provide funding) and beneficiaries (who receive the organization's goods and services) (Kitching, 2009). Disclosing liquidity may reduce information asymmetry by increasing transparency and enabling better monitoring of managers' financial decisions, ultimately improving organizational liquidity. In addition, recent research supports evidence of a learning effect from mandated disclosure (Jayaraman and Wu 2019; Kim and Valentine 2021). NFPs may learn internally or from peer organizations (those within the same subsector) from the information provided under ASU 2016-14.

I hypothesize that the increased salience of liquidity in financial reporting as a result of ASU 2016-14 will influence NFPs to maintain operating reserves more closely to NFP sector guidelines, i.e., the recommended range of liquidity. Research shows that NFPs benefit from accumulating net assets, as this enables the organization to maintain program output when revenues decline (Chang and Tuckman 1991). Further, donors prefer NFPs to accumulate moderate wealth, yet penalize NFPs with excessive levels of wealth (Calabrese 2011; Basu et al. 2021). Because the risks are different for NFPs maintaining insufficient versus excessive liquidity, I examine the disclosure effects separately for NFPs with operating reserves below and above the recommended range prior to the disclosure mandate. I propose that NFPs with inadequate (excessive) liquidity prior to the mandate will increase (decrease) liquidity after the disclosure change.

To test my predictions, I estimate a regression model using panel data to compare liquidity before and after the mandated disclosure requirement. As ASU 2016-14 became effective for fiscal years beginning December 15, 2017, I consider the pre-mandate period to include data from fiscal years ended in 2014 through November 30, 2017, and the post-mandate

period to include data from fiscal years ended from December 31, 2018, through 2019. I measure liquidity using the operating reserve ratio, or the number of months a nonprofit could cover expenses with accumulated unrestricted reserves (defined by NORI 2008). Following NFP sector guidelines, I measure the recommended level of liquidity as a range between three and twenty-four months of expenses. My sample includes NFPs in the *2019 NonProfitTimes (NPT) 100*, a ranking of the 100 largest nonprofits with a minimum of 10% revenue from public support. I obtain financial data from the Internal Revenue Service (IRS) Statistics of Income (SOI) files and hand collect any additional financial data that is not available through the IRS. I perform several sensitivity tests, including using a balanced sample and alternate definitions of the recommended range of liquidity.

I find that NFPs with excessive operating reserves prior to the disclosure mandate significantly decrease reserves after the disclosure mandate. Specifically, NFPs with reserves above the recommended range decrease operating reserves by 5.25 months in the post-period. In contrast, NFPs with insufficient reserves prior to the disclosure mandate increase reserves by 1.16 months from fiscal year-ends December 31, 2016, to November 30, 2019, the years just before and just after the disclosure mandate. However, I do not find a significant increase in reserves for those NFPs with reserves below the recommended range over the full sample period, or from fiscal years 2014 to 2019. These results suggest that NFPs with excessive liquidity may have anticipated the disclosure change and decreased reserves over time, yet NFPs with insufficient liquidity needed more time to accumulate resources and react to the disclosure closer to the year it became effective.

This study makes several contributions. It expands the literature on economic consequences of accounting regulation by examining the effects of mandated disclosures on

nonprofit organizations. In doing so, this paper answers the call of Leuz and Wysocki (2016) for more research on mandatory financial disclosure in areas outside of the corporate setting. My design exploits an exogenous mandatory disclosure change and uses a within-organization approach across a relatively short time interval to help mitigate bias. This study also adds to recent literature on the real effects of mandated disclosure by examining how disclosing liquidity information already available to NFP managers affects the decisions that NFP managers make for the organization (discussed in Kanodia and Sapra 2016).[2] In addition, Zietlow et al. (2007) state, "liquidity management is one of the most important yet least studied areas in the management of nonprofits" (p.24). This study contributes to NFP research by expanding our understanding of operating reserves and liquidity management strategies.

This study has implications for policy makers and nonprofit practitioners. One of the FASB's main objectives of ASU 2016-14 is to improve transparency of liquidity in NFP financial reporting. I find that increasing the transparency of liquidity in NFP financial reporting influences management's behavior. Regulated liquidity disclosure enhances the performance of NFPs by influencing NFPs to manage operating reserves more closely to sector guidelines. This change to organizational liquidity should not only interest accounting regulators, but also the nonprofit community (e.g., the NORI Workgroup, accounting firms with NFP clients, and charity watch groups) and financial statement users. Donors and creditors will also be interested in the changes to liquidity as a result of this disclosure because liquidity is important for the survival of NFP organizations.

[2] Leuz and Wysocki (2016) define real effects as "situations in which the disclosing manager or reporting entity changes its behavior in the real economy (e.g., investment, use of resources, consumption)." Kanodia and Sapra (2016) introduce a perspective of real effects where the act of disclosing information already available to managers results in real actions of managers on behalf of the firm.

The rest of this paper is organized as follows: the next section discusses institutional background, the third section reviews the related literature and develops the hypotheses, the fourth section describes the research design, the fifth section discusses the results, the sixth section provides supplemental tests, and the last section concludes.

II. BACKGROUND

Nonprofit Financial Reporting

Nonprofit organizations are tax-exempt entities that operate to fulfill a mission rather than to earn a profit. Despite the term, nonprofits *can* earn a profit when total revenue exceeds total expenses, but such a result is termed a change in net assets rather than profit. Net assets are the value of a NFP's assets less its liabilities. Because NFPs are prohibited from distributing any profit (or change in net assets) to those in control of the organization, accumulated net assets must remain within the organization to be used in accordance with the organization's mission (Hansmann 1980). However, no limitation exists on the amount of net assets a NFP can generate or the length of time net assets can accumulate.

NFPs follow Generally Accepted Accounting Principles (GAAP) to prepare annual financial statements for a wide variety of financial statement users, including donors, charity rating agencies, grantors, regulators, and creditors. While NFP financial statements look different from those of for-profit entities, the objective of financial reporting is the same for both. Per the FASB Conceptual Framework, the objective of financial reporting is to provide useful financial information to existing and potential resource providers (SFAC 8). Like the needs of shareholders, users of NFP financial statements need information about the organization's programs and its ability to continue to fund those programs.

In 2016, the FASB issued Accounting Standards Update (ASU) 2016-14, *Presentation of Financial Statements of Not-for-Profit Entities.* The ASU represented the first major change to NFP financial reporting standards in over two decades. Based on the recommendations of the

FASB's Nonprofit Advisory Committee (NAC), the FASB's objectives were to improve classification of net assets and financial statement information regarding liquidity, financial performance, and cash flows (FASB 2016).[3] ASU 2016-14 became effective for fiscal years beginning after December 15, 2017, and includes a provision to enhance disclosures related to liquidity and availability of resources (FASB 2016).

Liquidity and Availability of Resources Disclosure

The FASB's Conceptual Framework defines liquidity as an asset or liability's proximity to cash (SFAC 8). NFPs, with the exclusion of NFP business-oriented healthcare entities, are not required to issue a classified Statement of Financial Position but must present assets and liabilities in order of liquidity. NFPs are also required to separately report the total of net assets with and without donor restrictions. They are not required to report the restriction distinction by financial statement account. Consequently, NFPs may have restricted assets, earmarked for specific use or timing, that otherwise appear liquid to financial statement users. Thus, prior to ASU 2016-14, financial statement users were unable to easily determine available, liquid resources, i.e., those resources that are both current and without restrictions.

In its review of the NFP financial reporting model, the NAC identified the lack of information related to liquidity in financial statements as an area of main concern. According to NAC meeting minutes, one board member noted:

"…another main challenge (is) related to the distinction between cash and liquidity. Users are interested in understanding the true liquidity of an organization. There should

[3] The Not-for-Profit Advisory Committee (NAC), a standing committee of 15-20 members, advises the FASB on the state of the NFP financial reporting model. The NAC surveyed the Not-for-Profit Resource Group, a group of 111 nonprofit members (now 250 members), to assist the committee in identifying financial reporting areas in need of improvement (FASB 2016).

be some focus on presenting the restrictions and limitations on cash that would affect the users' understanding of liquidity (NAC 2010; p. 6)."

In addition, NFP financial reporting lacked information on liquidity risk and how NFPs manage such risk (FASB 2016).

ASU 2016-14 therefore requires NFPs to more transparently provide relevant information that aids in assessing liquidity (FASB 2016). Specifically, following ASU 2016-14, NFPs must now disclose: 1) quantitative information (either on the face of the balance sheet or in the notes) on the availability of financial assets to meet cash needs for general expenditures within one year of the balance sheet date; and 2) qualitative information related to how a NFP manages its liquid resources (FASB 2016).[4] With respect to financial assets' availability, NFPs must disclose 1) the type of asset whose use is limited; 2) the limitations on cash and cash equivalents; 3) the contractual limitations on assets; 4) the type of restriction and how and when the assets can be used; and 5) any additional limitations on assets, including board designations (FASB 2016).

[4] Appendix II provides two examples of liquidity disclosures from NFP organizations.

III. LITERATURE REVIEW AND HYPOTHESES

Disclosure

Research on public companies provides evidence of the economic consequences of accounting disclosure (see Beyer et al. 2010 for a comprehensive review). More specifically, the mandated disclosure literature examining for-profit organizations finds that regulated disclosures impact firm behavior (Chuk 2013; Bonaimé 2015; Christensen et al. 2017; Roychowdhury et al. 2019; Jayaraman and Wu 2019; Kim and Valentine 2021). Chuk (2013) examines a revision to Statement of Financial Accounting Standards (SFAS) 132 and finds that firms with unusually high expected rates of return (ERRs) on pension assets prior to the mandate increase high-risk securities in asset allocations and/or decrease ERRs after the disclosure change (Chuk 2013). Bonaimé (2015) studies the implication of the 2003 change in Rule 10b-18 of the Securities and Exchange Act of 1934, which mandates disclosure of repurchase transactions. She finds that repurchase plan completion rates, or the portion of stock repurchased compared to the announced amount, increases after the disclosure change (Bonaimé 2015). These findings suggest that increasing transparency in financial reporting through regulated disclosure influences mangers' financial decisions.

Christensen et al. (2017) provide evidence of the incremental effects of disclosing information in financial reports, suggesting that merely the dissemination of information in financial reports can influence firm behavior. Under Section 1503 of the Dodd-Frank Act, firms registered with the Securities and Exchange Commission (SEC) must disclose mine-safety

performance information in 10K and 10Q financial reports, even though the mine performance information is already publicly available. Christensen et al. (2017) find a decrease in mine safety citations for mines required to disclose (SEC registrants) as compared to mines not required to disclose (non-SEC registrants) this information.

In a review of the economic effects of financial reporting on corporate investment Roychowdhury et al. (2019) document two broad frameworks: 1) an agency framework where information asymmetry exists and 2) a learning channel where information uncertainty exists. Both frameworks are also applicable in the NFP disclosure setting, as investment allocation is an aspect of liquidity.

Information asymmetry exists in NFPs because managers often have access to financial information that stakeholders do not. The agency costs of information asymmetry are heightened for NFPs because they serve two principals: donors, who provide funding, and beneficiaries, who receive the organization's goods and services (Kitching, 2009). Voluntary disclosure of financial information is useful and relevant when making donation decisions (e.g., Parsons 2003; Trussel and Parsons 2008). Specifically, donors use NFP financial information to evaluate efficiency (how well a NFP uses it resources), effectiveness (how well a NFP meets the needs of its mission), and financial stability (ability to continue to operate) (Parsons 2003). Since donors rely on disclosures made by NFPs to allocate their resources, information asymmetry in the NFP sector may lead to misallocation of those resources. Accounting information can reduce information asymmetry by increasing transparency and enabling more effective monitoring of managers' financial decisions. Thus, a mandated financial disclosure that increases transparency of a NFP's liquidity may ultimately improve NFP liquidity.

Information asymmetry may also exist between a NFP's board of directors, the oversight body for the organization, and NFP management. Steinberg (1986) discusses two objective functions of NFP organizations: 1) a budget maximizer objective where the focus is on increasing resources and 2) a service maximizer objective where the focus is on increasing program expenses, or those expenses related to a NFP's mission, and decreasing fundraising and administrative expenses. Jegers (2010) finds that agency conflicts exist when a NFP's board of directors seeks to maximize service and a NFP's management seeks to maximize budget. Depending on the NFP objective, NFP liquidity may be managed to increase resources i.e., budget maximizer approach or to increase program benefits i.e., service maximizer approach. The increased salience of liquidity information in the financial statements likely influences how NFPs manage liquidity resources to achieve either or both of the objectives discussed above.

The second framework focuses on learning effects, and recent literature suggests that financial reporting impacts managers' information sets (Roychowdhury et al. 2019). Changes to disclosure regulation may lead to learning within the organization or among peer organizations. Information required by regulated disclosure may not have been previously collected, and managers learn internally from it, even without agency conflicts (Roychowdhury et al. 2019). Liquidity and availability of assets are not new topics for NFPs, but the disclosure requirement to both quantify available amounts and qualify liquidity policies may require managers to assemble new information (Rottcamp 2019).

In addition, disclosures of peer organizations, or NFPs within the same subsector, may inform NFP managers and alter financial decisions. In ASU 2016-14 draft discussions, a NAC member noted,

> "NFP boards seem to have a heightened interest in the numbers and external reports of the NFP. Board members will often ask for the five items (or metrics) that best express financial health, performance, cash, liquidity, and flexibility, and asked how these items connect to the story of the NFP...it is not only difficult to find these critical indicators in the financial statements, but to find comparable metrics as well (NAC 2012; p.3)."

Having access to peer organization liquidity information may serve as a benchmarking tool. Kim and Valentine (2021) examine the impact of patent disclosures on corporate innovation, i.e., patent citations. They find that firms whose rivals reveal more information as a result of the disclosure mandate increase innovation, yet firms whose own disclosures are revealed to competitors decrease innovation (Kim and Valentine 2021). These results suggest that mandated disclosure can be both beneficial to some firms yet costly to others.

Liquidity

A focus on liquidity is vital for the success of NFP organizations, second only to the organization's mission (Zietlow 2007). A liquid organization can meet current cash requirements without incurring excessive costs or losses (Zietlow 2007). Liquidity management, or how nonprofit managers allocate liquid resources over time, can involve (but is not limited to) cash budgeting, collections monitoring, inventory and capital expenditure management, investment decisions, debt financing, and reserve strategies.

Liquidity management is critical due to the inherent nature of the NFP sector, particularly because of the nature of NFP revenue streams (Zietlow 2007). NFPs have fewer and more volatile revenue sources than for-profit entities because they have no access to an equity market and are funded by donors (Zietlow 2007). NFPs receive voluntary donation revenues to incur program service expenses rather than incurring expenses to generate revenues as in for profit

firms (Hofmann and McSwain 2013). Donors are "third-party" funders, whose generosity is independent from the satisfaction of the NFP's beneficiaries (Tuckman and Chang 1991a). In addition, donation revenue sources vary depending on changes in the economy and tax laws. During a recession NFP revenues may decrease at a time when its services are at their highest demand.

Because donors can restrict funds for certain uses or time frames, NFP managers can only control those resources that are unrestricted (Calabrese 2012). Restricted assets, such as endowments, make it more difficult for NFP managers to match cash inflows to outflows, which can significantly impact the organization's liquidity (Zietlow 2007).[5,6] Further, donors often restrict dollars to support the NFP mission (program costs), rather than to support operating and administrative costs. Donors' preference to fund program costs contributes to the "nonprofit starvation cycle," where underfunding of indirect costs leads to financial instability (Gregory and Howard 2009).

Accordingly, a certain level of accumulation of wealth offers stability and is beneficial to a NFP's success (Chang and Tuckman 1991; Greenlee and Trussel 2000). Early theories of nonprofit behavior posited that NFPs aim to expend all revenues on organizational goals, thus earning zero surplus or recording no change in net assets (Chang and Tuckman 1990). However, research shows that NFPs consciously plan to increase net assets (Chang and Tuckman 1990) and seek to accumulate unrestricted net assets over time (Calabrese 2012). NFPs with lower levels of net assets and liquidity are more vulnerable to fiscal shocks, and accumulating

[5] Endowments are restricted funds that are unique to the NFP sector. Generally, NFPs invest the original endowed amount and can only access the investment income for the stated purpose of the endowment.
[6] Quasi-endowments are board-designated endowments. These are classified as unrestricted net assets.

unrestricted net assets helps NFPs maintain program output, or continue its mission, when revenues decline (Tuckman and Chang 1991b; Chang and Tuckman 1991).

Operating reserves

ASU 2016-14 requires NFPs to quantitatively disclose the availability of assets to meet operational needs within the next year. The Nonprofit Operating Reserves Initiative (NORI) Whitepaper defines operating reserves as "available unrestricted net assets" and includes a call to action for all NFPs to add an operating reserve policy as an organization objective (NORI 2008). Operating reserves require NFP managers to save a portion of surplus to create a cushion against unexpected financial events.

Similar to the current ratio or months of cash for public companies, the appropriate level of operating reserves is based on the risks and characteristics of a given NFP organization. While a single benchmark for operating reserves does not exist, practitioners and charity watch groups provide recommendations on the optimal level of liquid reserves a NFP should maintain. The NORI Workgroup recommends a minimum reserve of twenty-five percent or three months of annual expenses (NORI 2008). BDO, a lead public accounting firm in the nonprofit sector, suggests a minimum of six months in operating reserves (BDO 2019). Candid, a nonprofit watchdog organization (formally Foundation Center and Guidestar), states that "a commonly used reserve goal is 3-6 months' expenses," yet "reserves should not exceed the amount of two years' budget" (Candid(b)). Other charity monitoring organizations also find excess levels of wealth concerning. To meet the Better Business Bureau's Standards for Charity Accountability, a NFP's unrestricted net assets cannot exceed three times the higher of the previous year's expenses or the current year's budgeted expenses (BBB). CharityWatch (formerly the American Institute of Philanthropy (AIP)) takes a firm stance on treatment of excessive available assets,

downgrading a NFP's rating if it holds three or more years of budgeted expenses (CharityWatch).

Despite recommendations, a significant portion of the NFP sector does not hold adequate operating reserves (NORI 2008; Blackwood and Pollak 2009; Calabrese 2013; BDO 2019; NFF 2022). Blackwood and Pollak (2009) find that 57% of public charities in the Washington, D.C. area have less than three months of expenses in reserves. Calabrese (2013) examines a large sample of NFPs between 2003 to 2008 and finds that approximately forty percent of NFPs have no operating reserves. NFPs with inadequate operating reserves lack a cushion for financial distress and are more susceptible to unexpected financial events (e.g., economic downturns, loss of funding, unbudgeted expenditures, increased demand for services) (Tuckman and Chang 1991a). NFPs utilize operating reserves to smooth fluctuations between revenue and expenses during economic downturns (Calabrese 2018). NFPs with inadequate operating reserves resort to cutting operating costs or borrowing debt to continue program services (Sloan et al. 2015).

Holding sufficient operating reserves aids in long-term financial stability (NORI 2008). Accumulated funds give NFP managers more financial flexibility and greater opportunity to invest in future activities to accomplish its mission (Chang and Tuckman 1990). Further, donors value financial stability measures when assessing a NFP's ability to continue to operate (Parsons, 2003). Calabrese (2011) examines donor reactions to operating reserves and finds that future contributions increase as operating reserves increase to a modest amount (less than two years of expenses). Financial statement users may view NFPs that disclose low levels of liquidity negatively, influencing donors and creditors to give to more financially stable NFPs.

Thus, I propose that NFPs with inadequate liquidity prior to the disclosure mandate increase liquidity after the mandate to align with NFP sector guidelines. More formally stated, I hypothesize:

H1: NFPs with operating reserves below the recommended range before the disclosure mandate increase operating reserves after the disclosure mandate.

NFPs are measured on their ability to attain their mission rather than a profit. Nonprofits are not limited on accumulating reserves, but excessive amounts may increase scrutiny from financial statement users. Research suggests that donors penalize NFPs with excessive levels of wealth (Calabrese 2011; Basu et al. 2021). Although Calabrese (2011) finds a positive relation between future contributions and modest reserves (less than two years of expenses), he shows a negative relation between future contributions and excessive operating reserves (more than five years of expenses). Basu et al. (2021) find similar results, where excessive NFP profitability (return on assets) is negatively associated with subsequent future donations and government grants. As with low levels of liquidity, financial statement users, donors, charity watch groups, and even the press may increase scrutiny when NFPs disclose excessive levels of liquidity.

Thus, I propose that NFPs with excessive liquidity prior to the mandate will decrease liquidity after the disclosure change to align with NFP sector guidelines. More formally stated, I hypothesize:

H2: NFPs with operating reserves above the recommended range before the disclosure mandate decrease operating reserves after the disclosure mandate.

Despite my expectations, it is possible that mandated disclosure does not impact NFP liquidity. For organizations to learn from financial reporting regulation, managers must use similar financial measures for external reporting as for internal decision-making (Kaplan 1984).

Success for NFPs is measured by its ability to reach its mission, making NFP effectiveness difficult to measure (Hansmann 1980). In general, the NFP sector lacks consensus on how to measure financial objectives. If NFP managerial accounting is not aligned with NFP financial accounting, then mandated disclosures may not impact organizational liquidity. In addition, opportunity costs exist when NFPs maintain reserves. NFPs may operate with a service maximizer objective, or a focus on program costs, rather than a budget maximizer objective, or a focus on increasing resources (Steinberg 1986). Calabrese (2013) suggests low reserves across the sector may be due to managers' preferences to spend excess surplus in the current period to keep program expense ratios, a common measure of NFP efficiency, at desirably high levels (Calabrese 2013). Lastly, liquidity may adjust slowly over time, particularly for organizations with low liquidity. To increase operating reserves, NFPs must generate a surplus or specifically budget for an operating reserve, which may take longer for NFPs struggling to maintain current operating costs. Thus, the impact of the mandated disclosure on NFP liquidity is not clear.

IV. RESEARCH DESIGN

Sample

The FASB liquidity disclosure is required in GAAP financial statements of NFP organizations. My sample includes NFPs in the *2019 NonProfitTimes (NPT) 100*, a study of the largest nonprofits in the United States with a minimum of 10% of revenue from public support, ranked by total revenue. All organizations in the sample file Form 990 with the IRS and issue annual audited financial statements.[7] I obtain financial data for the NFPs in my sample over a six-year period from 2014 to 2019. I use the Internal Revenue Service (IRS) Statistics of Income (SOI) files containing Form 990 data and hand collect any additional financial data that is not available through the IRS.[8]

The FASB issued ASU 2016-14 in 2016, and the mandate became effective for NFP organizations with fiscal years beginning December 15, 2017, or later. I consider the pre-mandate period to include data from fiscal years ended in 2014 through November 30, 2017, and the post-mandate period to include data from fiscal years ended from December 31, 2018 through 2019. Observations with fiscal year-ends between December 31, 2017, and November 30, 2018, occur during the transition period and are excluded from the sample. Table 1 provides further details of the sample selected.

[7] NFPs must file an informational tax return (Form 990) annually with the IRS if certain financial thresholds are met. Form 990 requires detailed financial data, along with an overview of the organization's activities and governance practices.

[8] The SOI IRS files currently do not include the breakout of net assets with and without donor restrictions for 2019, the breakout of administrative expenses, and the breakout of government grants and donations from total contributions and gifts. Thus, I hand collect these data.

Table 1

Sample Selection

	NFP-years	Unique NFPs
Top 100 Nonprofits FY 2014-2019	600	100
Less:		
Observations for religious NFPs not required to file 990	(36)	(6)
Observations where NFPs change fiscal year-end during the year	(1)	(0)
Observations during the transition period: FY 12/31/17 -11/30/18	(94)	(0)
Observations missing hand-collected data	(2)	(0)
Final Sample for tests	467	94

Dependent Variable

The dependent variable in my study is NFP liquidity. The FASB defines liquidity as an asset or liability's proximity to cash (SFAC 8). I measure liquidity using operating reserves because it is a key liquidity metric used by practitioners in the nonprofit sector.[9] Operating reserves are defined as available unrestricted net assets that a NFP maintains for unexpected financial needs (NORI 2008). Operating reserves measure liquidity but also consider financial flexibility and risk tolerance (Candid(a)).[10] Thus, operating reserves align with FASB's requirement for NFPs to disclose resources that are both liquid (current) and available (unrestricted). I calculate operating reserves using the following NORI Workgroup definition of operating reserve ratio (*ORR*):

[9] The NORI Workgroup, consisting of NFP practitioners and experts, recommends that all NFPs adopt an operating reserve policy and use a common definition of calculating operating reserves (NORI 2008). BDO accounting firm speaks to the importance of operating reserves (liquid, net assets without donor restrictions) as a part of liquidity in its annual benchmarking survey, the *Nonprofit Standards* (BDO 2019). The Nonprofit Finance Fund (NFF) lists liquidity and the operating reserve calculation I use in this study as one of the top measures of financial health in its *Best Practices for Nonprofit Financial Health* blog post in 2018 (Kramer 2018). Guidestar, a charity rating agency, measures months of estimated liquid unrestricted net assets (LUNA), or operating reserves, in its financial trend analysis as an indicator of NFP liquidity (Candid(a)).

[10] Also called months of liquid unrestricted net assets (LUNA).

$$ORR = \frac{[Unrestricted\ Net\ Assets - Property,\ Plant,\ and\ Equipment,\ net\ of\ Long\text{-}Term\ Debt]}{[(Total\ Expenses - Depreciation)/12]}$$

The numerator of *ORR* is liquid, unrestricted net assets (LUNA) and represents available funds to support operations (Candid(a)). After dividing LUNA by monthly expenses, *ORR* measures the number of months a nonprofit could cover expenses with accumulated unrestricted reserves.

Recommended Range

As discussed in Section III, nonprofit practitioners and charity watch organizations provide recommendations on the level of liquid reserves a NFP should maintain. The general rule of thumb is that NFPs maintain a minimum of three to six months, but no more than two to three years of annual expenses (NORI 2008; Candid(b); BDO; BBB; CharityWatch). In my main analyses, I measure the recommended range as three to twenty-four months.

I partition NFPs into three categories: below, within, and above the recommended range of reserves. NFPs with *ORR* less than three months for most fiscal years in the pre-period are below the recommended range. NFPs with *ORR* between three and twenty-four months for most fiscal years in the pre-period are within the recommended range. NFPs with *ORR* more than twenty-four months for most fiscal years in the pre-period are above the recommended range. Generally, each NFP has either three or four fiscal year observations in the pre-period. A NFP with three years in the pre-period is in the below (above) category if *ORR* is below (above) the recommended range for two or more years. A NFP with four years in the pre-period is in the below (above) category if *ORR* is below (above) the recommended range for three or more years in the pre-period.

Empirical model

Using panel data, I compare operating reserves before and after the mandated disclosure requirement. As discussed earlier, the risks of maintaining inadequate reserves are different

from maintaining excessive reserves. Therefore, I split the sample into two sub-samples. The sub-sample for H1 includes all NFPs below and within the recommended range, while the sub-sample for H2 includes all NFPs within and above the recommended range.

I estimate operating reserves for NFPs below and within the recommended range using the following regression model for H1:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t} \quad (1)$$

where subscript *i* represents the NFP and subscript *t* represents the year. *ORR,* or the number of months a NFP could cover annual expenses with accumulated unrestricted net assets, is calculated using the NORI (2008) workgroup definition. *Post* is an indicator variable that is coded 0 in the pre-mandate period (fiscal years ended in 2014 through November 30, 2017) and 1 in the post-mandate period (fiscal years ended from December 31, 2018, through 2019).

Below is an indicator variable that splits the dependent variable, *ORR*, into two levels. *Below* is coded 0 if the NFP's *ORR* is within the recommended range in the pre-period and 1 if *ORR* is below the recommended range in the pre-period.

The independent variable of interest for H1 is the interaction of *PostXBelow*. I expect a positive coefficient on *PostXBelow*, suggesting that NFPs with insufficient reserves prior to the disclosure mandate increase the number of months of reserves post-mandate.

I estimate operating reserves for NFPs within and above the recommended range using the following regression model for H2:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t} \quad (2)$$

where subscript *i* represents the NFP and subscript *t* represents the year. *ORR* and *Post* are the same variables from Equation (1).

Above is an indicator variable that splits the dependent variable, *ORR*, into two levels. *Above* is coded 0 if the NFP's *ORR* is within the recommended range in the pre-period and 1 if *ORR* is above the recommended range in the pre-period.

The independent variable of interest for H2 is the interaction of *PostXAbove*. I expect a negative coefficient on *PostXAbove*, suggesting that NFPs with excessive reserves prior to the disclosure mandate decrease the number of months of reserves post-mandate.

Control Variables

All other explanatory variables are measured identically in both models and are consistent with prior research estimating *ORR* (i.e., Calabrese 2013 and Grizzle et al. 2015). Operating margin (*OpMargin)* is revenue less expenses, divided by revenues (Tuckman and Chang 1991a; Grizzle et al. 2015). NFPs with higher operating margin are less financially vulnerable and more able to accumulate net assets (Tuckman and Chang 1991a; Greenlee and Trussel 2000). Grizzle et al. (2015) find that operating reserves increase as operating margin increases. I anticipate a positive relation between *OpMargin* and *ORR*.

Revenue diversification (*RevDiv*) is measured with the Herfindahl-Hirshman Index (HHI) using three different revenue sources: contributions, earned income, and investment income (Carroll and Stater 2009; Grizzle et al. 2015). *RevDiv* = $(1 - \sum_{i=1}^{3} R_i^2) / \frac{2}{3}$, where R_i is the proportion of revenue generated by each revenue source. A higher value of *RevDiv* indicates a more diverse revenue stream. Risk-tolerant NFPs may hold fewer operating reserves with diversified revenue sources. However, risk-averse NFPs may instead hold large reserves with diversified revenue. Because it is unclear whether managers of NFPs use revenue diversification

as a replacement or as an addition to operating reserves, I do not predict a direction for the relation between *RevDiv* and *ORR*.

Donation revenue *(Donations)* is the percentage of contributions to total revenue. Generally, private donations come with less restrictions than government grants. Managers of NFPs that primarily rely on donation revenue may generate unrestricted net assets more easily, potentially decreasing the need for operating reserves (Blackwood and Pollak 2009). Grizzle et al. (2015) find NFPs heavily reliant on private donations hold fewer operating reserves. Yet, Calabrese (2013) finds that donations do not significantly affect the level of NFP operating reserves. I anticipate a negative relation between *Donations* and *ORR*, if significant.

Funding from state and federal governments (*Govt*) is the percentage of government grants to total revenue (Calabrese 2013). NFPs that receive a significant portion of government funding may have less volatile revenue, potentially decreasing the need for operating reserves. Calabrese (2013) finds that NFPs decrease operating reserves as government funding increases. I anticipate a negative relation between *Govt* and *ORR*.

Administrative ratio *(Admin)* is administrative expenses divided by total functional expenses. Administrative expenses for NFPs include management and general expenses (e.g., rent, interest, and insurance), not program expenses or fundraising expenses. NFPs with higher administrative costs may have more discretionary funds available to save for operating reserves (Grizzle et al. 2015). Grizzle et al. (2015) find that NFPs with higher administrative ratios maintain higher operating reserves. I anticipate a positive relation between *Admin* and *ORR*.

Access to debt *(Debt)* is a dichotomous variable coded 1 if a nonprofit has financial debt

outstanding in Form 990s filed between 2012-2019.[11,12] Nonprofit organizations have access to both taxed and tax-exempt credit markets through bonds, mortgages, notes, and lines of credit. Sloan et al. (2016) finds that nonprofit executives consider both access to debt and endowment funds as substitutes for operating reserves. NFP organizations with outstanding debt or that are highly leveraged maintain lower operating reserves (Calabrese 2013; Grizzle et al. 2015). I anticipate a negative relation between *Debt* and *ORR*.

NFP fixed assets (*PPE)* is the ratio of property, plant, and equipment to total assets (Calabrese 2013). Calabrese (2013) finds that NFPs with larger amounts of fixed assets hold fewer operating reserves, suggesting the need for operating reserves decreases because property serves as collateral for borrowing. Therefore, I expect a negative relation between *PPE* and *ORR*.

Endowments (*Endow)* are the proportion of permanent restricted assets to total assets (Calabrese 2013). Nonprofit endowments are typically designed to maintain a principal balance, while investment earnings, if any, can be allocated to programs. The use of endowment funds is restricted and generally managed to provide long-term income, whereas operating reserves are liquid and available for immediate use (Bowman et al. 2007). Calabrese (2013) finds that nonprofits with larger endowments reduce operating reserves, suggesting endowment funds provide a fixed income that decreases the need to hold large reserves. I anticipate a negative relation between *Endow* and *ORR*.

[11] Similarly, Calabrese (2013) and Core et al. (2006) define access to debt using a dichotomous variable coded 1 if the nonprofit has financial debt outstanding in any ten years ending at year *t.* IRS SOI data is not available prior to 2012. Thus, I measure access to debt using all 990 data filed between 2012-2019.

[12] As discussed in Calabrese (2013), an ideal measure of access to debt should include access to an unused line of credit, not just if a NFP had a debt balance outstanding. This information is not provided in the 990 forms.

NFP size (*Size)* is the natural log of year-end assets (Calabrese 2013; Yan et al. 2009). Larger, more established nonprofits may have greater ability to manage liquidity through more stable income streams or economies of scale and may not need large operating reserves (Ramirez, 2011). Grizzle et al. (2015) find that, overall, larger NFPs hold fewer operating reserves. However, several studies suggest size is not related to holding operating reserves and the lack of reserves is a sector-wide issue (Blackwood and Pollak 2009; Calabrese 2013). I anticipate a negative relation between *Size* and *ORR*, if significant.

NFP age *(Age)* is the current year minus the IRS ruling date for the nonprofit organization's tax-exempt status (following Grizzle et al. 2015). More established NFPs may have increased management experience related to liquidity. Further, NFP organizations that are more reputable may benefit during times of financial distress, which could allow for lower operating reserves. Grizzle et al. (2015) finds a positive relation between age and operating reserves yet calls for further investigation into this result. I anticipate a positive relation between *Age* and *ORR.*

Lastly, nonprofit financial ratios are generally viewed by NFP subsector so that comparisons are made among similar organizations. The National Taxonomy of Exempt Entities – Core Codes (NTEE-CC) identifies ten major nonprofit subsectors: 1) arts, culture, and humanities; 2) education; 3) environmental and animals; 4) health; 5) human services; 6) international, foreign affairs; 7) public, societal benefit; 8) religion related; 9) mutual/membership benefit; and 10) unknown. I include NFP subsector fixed effects to capture any underlying variation in operating reserves among different subsectors. In addition, I cluster standard errors on nonprofit organization and winsorize continuous variables at the 1st and 99th percentile.

V. RESULTS

Descriptive Statistics

Table 2 provides descriptive statistics for the entire sample. The mean value of *ORR* for the full sample is 10.32 months, while the median is 2.95 months. Thus, at least half of the sample maintains reserves less than three months, the minimum amount recommended by nonprofit practitioners. On average, NFPs in the sample have existed 46 years and report total assets over $872 million. Private donations average 58% of total revenue, and government grants average 11% of total revenue. Administrative expenses average 7% of total expenses, while operating margin averages 6%. Revenue is not highly diversified (*RevDiv* = 0.35) across gross contributions, earned income, and investment income. Overall, these findings appear reasonable given the sample is restricted to the largest NFPs.

Table 2

Full Sample Descriptives

Variable	Mean	Median	Lower Quartile	Upper Quartile	Standard Deviation
ORR	10.320	2.947	0.684	8.307	22.596
OpMargin	0.055	0.034	-0.012	0.111	0.149
RevDiv	0.345	0.289	0.055	0.624	0.289
Donations	0.581	0.600	0.285	0.931	0.328
Govt	0.109	0.008	0.000	0.138	0.189
Admin	0.070	0.060	0.026	0.103	0.054
Debt	0.621	1.000	0.000	1.000	0.486
PPE	0.150	0.085	0.030	0.240	0.161
Endow	0.096	0.051	0.000	0.148	0.121
Size	19.642	19.634	18.789	20.691	1.431
Age	46.216	44.000	28.000	65.000	23.821

Note. N = 467 NFP-year observations. The sample period includes fiscal years ended in 2014 through November 30, 2017 (pre-mandate), and December 31, 2018, through 2019 (post-mandate). T-tests and Wilcoxon tests were performed for differences between pre and post, and numbers in bold represent a significant difference at $p < 0.10$. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Table 3 provides descriptive statistics for the entire sample in the pre-period and the post-period. Average *ORR* is 10.03 months (median 2.90) in the pre-period and 11.09 months (median 3.64) in the post-period. Even though both mean and median *ORR* have increased post-disclosure, the increase is not significant at the conventional level. An analysis of variables before and after the disclosure change indicate that endowments (*Endow),* which are excluded from *ORR*, have increased significantly in the post-period. Endowments, or the percentage of restricted assets to total net assets, are likely significantly impacted by gains in the overall market over the sample period.[13]

[13] Average Dow Jones returns for each year in the sample are as follows: 7.52% in 2014; -2.23% in 2015; 13.42% in 2016; 25.08% in 2017, -5.63% in 2018 and 22.34% in 2019 (Slickcharts). The Dow Jones Indsutrial Average (DJIA) inflation-adjusted month-enin 2014 was $20,251 compared to $33,533 in December of 2019 (MacroTrends).

Table 3

Sample Descriptives Partitioned by Pre- and Post-Mandate

	Pre-Mandate (N= 339)					Post-Mandate (N=128)				
Variable	Mean	Median	Lower Quartile	Upper Quartile	Standard Deviation	Mean	Median	Lower Quartile	Upper Quartile	Standard Deviation
ORR	10.031	2.896	0.420	8.135	22.365	11.085	3.644	0.920	8.968	23.269
OpMargin	0.058	0.034	-0.008	0.118	0.155	0.047	0.034	-0.017	0.092	0.132
RevDiv	0.345	0.305	0.056	0.618	0.288	0.344	0.269	0.055	0.638	0.290
Donations	0.575	0.598	0.285	0.927	0.328	0.595	0.629	0.294	0.943	0.330
Govt	0.109	0.008	0.000	0.138	0.188	0.108	0.007	0.000	0.133	0.194
Admin	0.071	0.061	0.028	0.105	0.054	0.067	0.053	0.024	0.100	0.055
Debt	0.634	1.000	0.000	1.000	0.482	0.586	1.000	0.000	1.000	0.494
PPE	0.153	0.092	0.034	0.243	0.162	0.144	0.081	0.023	0.227	0.157
Endow	**0.083**	**0.045**	0.000	0.137	0.099	**0.131**	**0.080**	0.003	0.187	0.160
Size	19.632	19.551	18.789	20.693	1.413	19.668	19.727	18.778	20.633	1.485
Age	45.395	44.000	28.000	64.000	23.590	48.391	47.000	29.500	67.000	24.381

Note. The sample period includes fiscal years ended in 2014 through November 30, 2017 (pre-mandate), and December 31, 2018, through 2019 (post-mandate). T-tests and Wilcoxon tests were performed for differences between pre and post, and numbers in bold represent a significant difference at $p < 0.10$. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Table 4 provides descriptive statistics for NFPs with *ORR* below the recommended range (less than three months), *ORR* within the recommended range (three to twenty-four months), and *ORR* above the recommended range (more than twenty-four months). Average *ORR* for NFPs in the below group (N=224) is 0.09 months (median 0.55). Thus, at least half of the NFPs in the below category hold less than one month of annual expenses in reserves. In comparison to NFPs with *ORR* within and above the recommended range, below range NFPs, on average, have lower operating margin (4.1%) and revenue diversification (0.26), yet higher percentage of donations (64.6%), government grants (13.3%), and fixed assets (18.6%). Over sixty-nine percent of NFPs in the below category have debt outstanding. NFPs in the within range category (N=188) maintain an average *ORR* of 7.73 months (median 5.8 months), indicating many NFPs maintain lower levels of reserves within the recommended range. Average *ORR* for NFPs in the above category (N=55) is 60.85 months (median 47.2), which is well over thirty-six months, the level at which NFPs are penalized by charity rating agencies. In comparison to NFPs with *ORR* within and below the recommended range, above range NFPs, on average, have higher operating margin (12.8%) and revenue diversification (0.59), yet lower percentage of donations (39.1%), government grants (3.3%), and fixed assets (4%). Approximately forty-six percent of NFPs in the above category have debt outstanding.

Table 4

Sample Descriptives Partitioned by Below, Within, and Above NFPs

	Below Range Less than 3 Months (N= 224)		Within Range 3 - 24 Months (N=188)		Above Range More than 24 (N=55)	
Variable	Mean	Median	Mean	Median	Mean	Median
ORR	0.086	0.545	7.731	5.792	60.853	47.197
OpMargin	0.041	0.018	0.051	0.037	0.128	0.098
RevDiv	0.257	0.081	0.377	0.334	0.591	0.624
Donations	0.646	0.696	0.558	0.596	0.391	0.376
Govt	0.133	0.009	0.103	0.017	0.033	0.000
Admin	0.055	0.045	0.088	0.084	0.068	0.063
Debt	0.692	1.000	0.585	1.000	0.455	0.000
PPE	0.186	0.111	0.140	0.109	0.040	0.017
Endow	0.091	0.028	0.101	0.082	0.099	0.080
Size	19.177	19.311	19.829	19.804	20.893	21.016
Age	44.567	42.500	46.000	43.000	53.673	52.000

Note. The sample period includes fiscal years ended in 2014 through November 30, 2017, and December 31, 2018, through 2019. The recommended range for *ORR* is three to twenty-four months. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than three months (more than twenty-four months) for most fiscal years between 2014 – November 30, 2017. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Table 5 provides descriptive statistics for the pre- and post-period for NFPs below, within, and above the recommended reserve range. NFPs in the below category on average maintain negative reserves in the pre-period (-0.24 months) yet increase to maintain positive reserves in the post-period (0.97 months). Median *ORR* for those in the below group increases 2.5 times, improving from 0.36 months in the pre-period to 0.90 months in the post-period. Both mean and median *ORR* differ significantly ($p < 0.10$) from pre- to post-disclosure for below range NFPs. Mean *ORR* for those NFPs within the recommended range decreases from 7.76 months to 7.65 months, while median *ORR* increases from 5.75 months to 6.21 months. As anticipated, mean and median *ORR* for the within group do not differ significantly from the pre- to post-period ($p > 0.10$). NFPs above the recommended range of reserves decrease mean *ORR* from 62.53 (median 48.85) months in the pre-period to 57.11 (median 46.86) months in the post period, though neither difference is significant at the conventional level.

Table 5

Sample Descriptives for Below, Within, and Above NFPs by Pre- and Post-Mandate

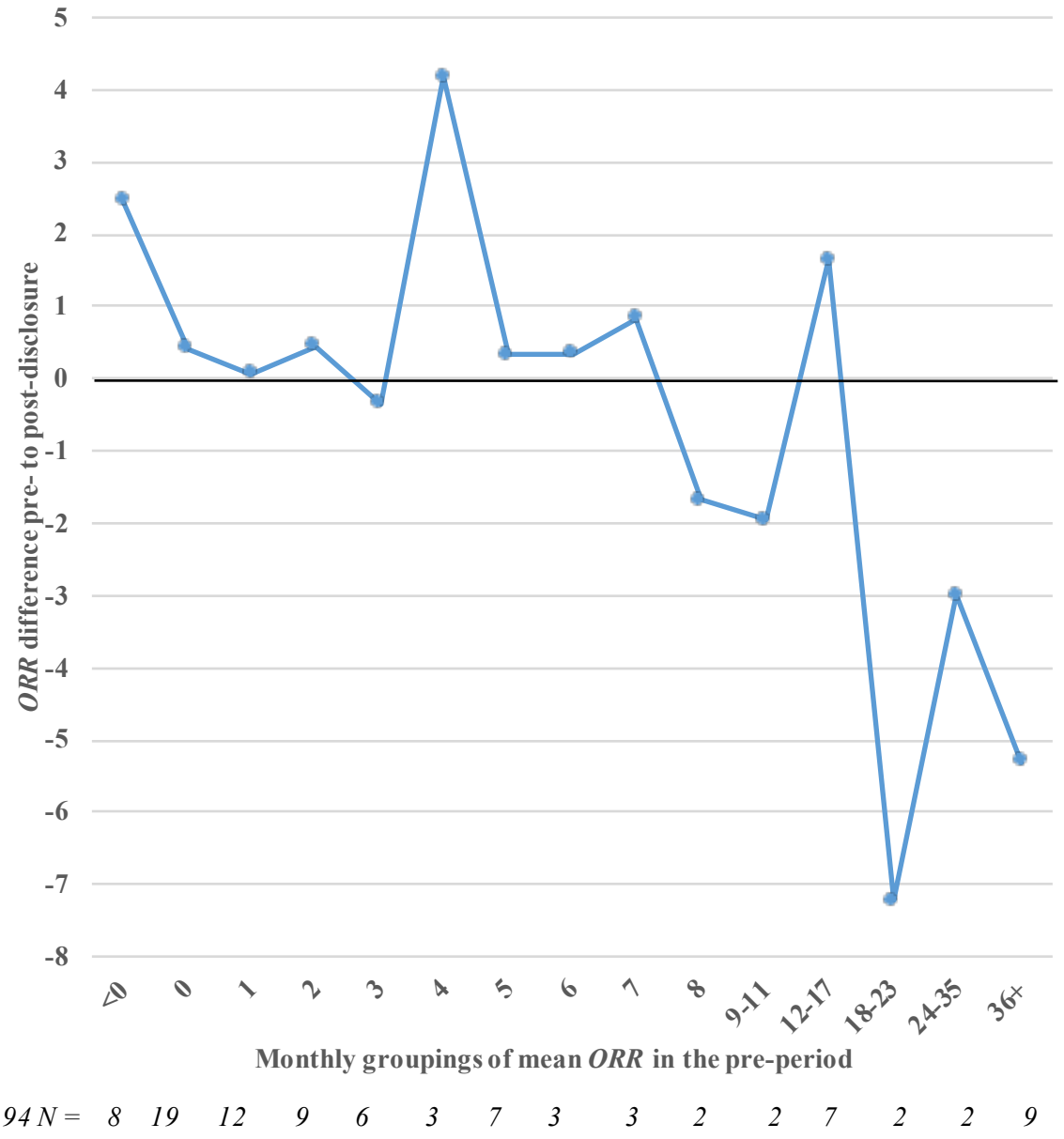
	Below Range Less than 3 Months				Within Range 3- 24 Months				Above Range More than 24 Months			
	Pre-Mandate (N= 164)		Post-Mandate (N=60)		Pre-Mandate (N= 137)		Post-Mandate (N=51)		Pre-Mandate (N= 38)		Post-Mandate (N=17)	
Variable	Mean	Median n	Mean	Median n	Mean	Median n	Mean	Median n	Mean	Median n	Mean	Median n
ORR	**-0.236**	**0.357**	**0.966**	**0.896**	7.762	5.747	7.648	6.210	62.528	48.850	57.107	46.856
OpMargin	0.039	0.017	0.046	0.020	0.058	0.038	0.033	0.036	0.142	0.101	0.096	0.078
RevDiv	0.261	0.084	0.247	0.073	0.380	0.339	0.370	0.285	0.584	0.580	0.608	0.657
Donations	0.640	0.693	0.661	0.807	0.554	0.595	0.570	0.597	0.372	0.316	0.432	0.380
Govt	0.129	0.007	0.142	0.013	0.106	0.017	0.096	0.014	0.036	0.000	0.026	0.000
Admin	0.057	0.047	0.050	0.037	0.089	0.086	0.085	0.077	0.065	0.052	0.075	0.078
Debt	0.701	1.000	0.667	1.000	0.599	1.000	0.549	1.000	0.474	0.000	0.412	0.000
PPE	0.190	0.113	0.175	0.084	0.140	0.108	0.142	0.115	0.040	0.018	0.040	0.017
Endow	**0.075**	**0.026**	**0.134**	**0.041**	**0.089**	0.074	**0.133**	0.103	0.093	0.077	0.111	0.080
Size	19.179	19.293	19.173	19.488	19.849	19.831	19.775	19.768	20.802	21.002	21.095	21.173
Age	44.293	42.000	45.317	44.000	44.839	41.000	49.118	49.000	52.158	51.000	57.059	54.000

Note. The sample period includes fiscal years ended in 2014 through November 30, 2017 (pre-mandate), and December 31, 2018, through 2019 (post-mandate). The recommended range for *ORR* is three to twenty-four months. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than three months (more than twenty-four months) for most fiscal years between 2014 – November 30, 2017. T-tests and Wilcoxon tests were performed for differences between pre and post, and numbers in bold represent a significant difference at $p < 0.10$. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Figure 1 provides the mean difference in *ORR* from pre- to post-period for monthly groupings of mean *ORR* in the pre-period. As discussed, those NFPs with insufficient *ORR* in the pre-period increase *ORR* and those with excessive *ORR* in the pre-period decrease *ORR* in the post-period. NFPs within range remain relatively stable.

Figure 1

Monthly ORR Difference Pre- to Post-Disclosure



Note. ORR is divided into month groupings based on average *ORR* by NFP in the pre-period. *ORR* difference is the mean of the difference between average ORR in the pre-period and average ORR in the post-period for each NFP in the sample. The sample period includes fiscal year ends 2014- November 30, 2017 (pre-period) and December 31, 2018-2019 (post-period). All continuoius variables are winsorized at the 1 percent level to reduce the influece of outliers. See Appendix I for variable definitions.

Table 6 provides descriptive statistics on the full sample by NFP subsector. Mean *ORR* is within the recommended range for all subsectors except arts, culture, and humanities (2.84 months), education (-0.26 months), and religion (2.54 months).[14, 15] Median *ORR* is below range for these subsectors, as well as the international subsector (1.82 months). For the health, human services, and public and societal benefit subsectors, median *ORR* is approximately half the mean *ORR*, indicating several NFPs in each of these subsectors have relatively large reserves. The healthcare sector maintains the highest mean *ORR* (19.77 months).

[14] Large universities are not included in the *NonProfitTimes (NPT) 100* ranking. The education subsector includes organizations that aid and promote education.
[15] Churches and organizations affiliated with churches are not required to file Form 990. The religion subsector includes one NFP organization, Christian Broadcasting Network.

Table 6

Subsector Descriptives

Variable	Arts, culture, and humanities	Education	Environment and animals	Health	Human services	International	Public and societal benefit	Religion
ORR	2.842	-0.255	5.718	19.774	11.282	3.924	18.362	2.543
	2.578	*0.334*	*4.964*	*3.720*	*3.381*	*1.817*	*9.670*	*1.664*
OpMargin	0.109	0.065	0.069	0.063	0.007	0.031	0.107	-0.009
	0.089	*0.089*	*0.071*	*0.047*	*0.010*	*0.011*	*0.039*	*-0.016*
RevDiv	0.668	0.355	0.485	0.342	0.397	0.092	0.349	0.720
	0.731	*0.369*	*0.599*	*0.278*	*0.398*	*0.026*	*0.312*	*0.724*
Donations	0.379	0.556	0.397	0.597	0.517	0.771	0.580	0.606
	0.399	*0.553*	*0.312*	*0.647*	*0.547*	*0.943*	*0.610*	*0.602*
Govt	0.172	0.153	0.214	0.025	0.084	0.174	0.046	0.000
	0.039	*0.009*	*0.222*	*0.000*	*0.029*	*0.024*	*0.000*	*0.000*
Admin	0.139	0.059	0.061	0.069	0.064	0.046	0.076	0.050
	0.137	*0.059*	*0.052*	*0.070*	*0.065*	*0.041*	*0.062*	*0.050*
Debt	0.900	1.000	0.571	0.455	0.611	0.500	0.776	1.000
	1.000	*1.000*	*1.000*	*0.000*	*1.000*	*0.500*	*1.000*	*1.000*
PPE	0.291	0.132	0.162	0.082	0.159	0.154	0.118	0.208
	0.278	*0.104*	*0.134*	*0.049*	*0.077*	*0.083*	*0.054*	*0.211*
Endow	0.177	0.179	0.123	0.108	0.069	0.062	0.074	0.009
	0.154	*0.224*	*0.098*	*0.072*	*0.035*	*0.018*	*0.044*	*0.005*
Size	20.768	20.325	20.163	19.806	18.929	19.274	19.700	18.968
	20.709	*20.742*	*20.200*	*19.659*	*18.887*	*19.340*	*19.865*	*18.955*
Age	58.800	61.000	56.286	39.131	45.189	44.764	39.862	55.200
	58.500	*68.500*	*60.000*	*38.000*	*39.000*	*38.500*	*35.000*	*55.000*
number of obs.	50	20	35	99	90	110	58	5

Table 6 Continued

Note. N = 467 NFP-year observations. Means are in regular font. Medians are italized. The sample period includes fiscal years ended in 2014 through November 30, 2017, and December 31, 2018, through 2019. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Table 7 partitions each subsector by the pre- and post-period. Median *ORR* increases in the post-period for all subsectors except for religion. The arts, culture, and humanities subsector increases mean *ORR* from below the recommended range in the pre-period (2.59 months) to within the recommended range in the post-period (3.87 months). Educational NFPs maintain negative average reserves in the pre-period (-0.99 months) and increase *ORR* to maintain positive reserves in the post-period (1.95 months).

Table 7

Subsector Descriptives Partitioned by Pre- and Post-Mandate

	Arts, culture, and		Education		Environment		Health		Human Services		International		Public and societal		Religion	
Variable	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
ORR	2.59	3.87	-0.99	1.95	5.57	6.08	18.38	22.84	12.15	9.25	4.03	3.63	19.07	16.33	2.85	1.30
	2.57	*3.44*	*0.18*	*0.71*	*4.65*	*6.25*	*3.29*	*4.08*	*3.22*	*4.95*	*1.75*	*2.12*	*9.12*	*12.19*	*2.78*	*1.30*
OpMargin	0.12	0.07	0.06	0.08	0.07	0.07	0.04	0.11	0.02	-0.02	**0.04**	**0.00**	0.11	0.09	-0.01	-0.02
	0.10	*0.03*	*0.09*	*0.09*	*0.08*	*0.06*	*0.04*	*0.07*	*0.01*	*-0.01*	*0.01*	*0.01*	*0.06*	*0.04*	*-0.01*	*-0.02*
RevDiv	0.66	0.69	0.37	0.32	0.47	0.51	0.34	0.34	0.39	0.42	0.09	0.09	0.35	0.35	0.72	0.71
	0.73	*0.74*	*0.37*	*0.30*	*0.59*	*0.62*	*0.31*	*0.22*	*0.39*	*0.47*	*0.02*	*0.04*	*0.31*	*0.37*	*0.73*	*0.71*
Donations	0.38	0.37	0.53	0.62	0.39	0.41	0.57	0.66	0.52	0.51	0.78	0.74	0.58	0.59	0.60	0.62
	0.40	*0.40*	*0.25*	*0.89*	*0.31*	*0.26*	*0.46*	*0.77*	*0.58*	*0.40*	*0.95*	*0.92*	*0.61*	*0.69*	*0.60*	*0.62*
Govt	0.17	0.18	0.16	0.15	0.24	0.16	0.03	0.02	0.08	0.10	0.16	0.20	0.05	0.05	0.00	0.00
	0.04	*0.04*	*0.02*	*0.00*	*0.26*	*0.06*	*0.00*	*0.00*	*0.02*	*0.03*	*0.02*	*0.06*	*0.00*	*0.00*	*0.00*	*0.00*
Admin	0.14	0.14	0.06	0.05	0.06	0.06	0.07	0.06	0.06	0.07	0.05	0.05	0.08	0.08	0.05	0.05
	0.14	*0.12*	*0.09*	*0.03*	*0.05*	*0.05*	*0.07*	*0.05*	*0.06*	*0.07*	*0.04*	*0.04*	*0.06*	*0.05*	*0.05*	*0.05*
Debt	0.90	0.90	1.00	1.00	0.56	0.60	0.49	0.39	0.62	0.59	0.51	0.48	0.77	0.80	1.00	1.00
	1.00	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.00*	*0.00*	*1.00*	*1.00*	*1.00*	*0.00*	*1.00*	*1.00*	*1.00*	*1.00*
PPE	0.30	0.28	0.14	0.11	0.16	0.17	0.09	0.06	0.15	0.17	0.15	0.16	0.12	0.13	0.22	0.17
	0.28	*0.26*	*0.18*	*0.03*	*0.13*	*0.14*	*0.05*	*0.02*	*0.08*	*0.08*	*0.08*	*0.11*	*0.05*	*0.04*	*0.22*	*0.17*
Endow	0.18	0.18	0.16	0.24	0.11	0.15	**0.08**	**0.17**	**0.05**	**0.11**	**0.05**	**0.09**	0.07	0.09	0.00	0.02
	0.15	*0.17*	*0.23*	*0.22*	*0.10*	*0.13*	*0.07*	*0.08*	*0.02*	*0.04*	*0.02*	*0.02*	*0.04*	*0.04*	*0.00*	*0.02*
Size	20.74	20.89	20.39	20.12	20.10	20.33	19.76	19.90	18.86	19.09	19.28	19.27	19.72	19.63	18.98	18.92
	20.69	*20.83*	*21.12*	*20.36*	*20.12*	*20.42*	*19.45*	*19.93*	*18.79*	*18.90*	*19.31*	*19.45*	*19.87*	*19.78*	*18.96*	*18.92*
Age	58.10	61.60	60.60	62.20	54.04	61.90	38.28	41.00	44.37	47.11	44.04	46.79	37.72	46.00	54.50	58.00
	58.00	*61.50*	*80.00*	*57.00*	*59.00*	*69.50*	*37.50*	*41.00*	*33.00*	*47.00*	*38.00*	*40.00*	*32.00*	*44.00*	*54.50*	*58.00*
N	40	10	15	5	25	10	68	31	63	27	81	29	43	15	4	1

Table 7 Continued

Note. Means are in regular font. Medians are italized. The sample period includes fiscal years ended in 2014 through November 30, 2017 (pre-mandate), and December 31, 2018, through 2019 (post-mandate). T -tests and Wilcoxon tests were performed for differences between pre and post, and numbers in bold represent a significant difference at $p < 0.10$. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Table 8 provides correlation coefficients for variables included in the model. The table shows Pearson correlations below the diagonal and Spearman correlations above the diagonal. Spearman correlations indicate *ORR* is not significantly correlated with *Post* ($p > 0.10$). *ORR* is significantly correlated with all other variables in the model except *Govt* and *Age*. The signs for the correlations of *ORR* with operating margin (*OpMargin*), revenue diversification (*RevDiv*), and administrative expense (*Admin*) are positive. The signs for *Endow* and *Size* are also positive yet not as predicted, suggesting that larger NFPs and those with larger endowments may instead maintain higher operating reserves. Lastly, the correlations between *ORR* with *Debt, Donations,* and *PPE* are negative and as expected.

Table 8

Correlation Coefficients

Variable	*ORR*	*Post*	*OpMargin*	*RevDiv*	*Donations*	*Govt*	*Admin*	*Debt*	*PPE*	*Endow*	*Size*	*Age*
ORR	1.000	0.060	0.227	0.328	-0.226	-0.051	0.233	-0.143	-0.276	0.112	0.356	0.026
Post	0.021	1.000	-0.035	0.004	0.019	-0.029	-0.033	-0.044	-0.037	0.107	0.019	0.056
OpMargin	0.180	-0.031	1.000	0.111	-0.037	-0.006	0.119	-0.042	-0.043	0.118	0.257	-0.014
RevDiv	0.312	-0.001	*0.078*	1.000	-0.678	0.180	0.556	0.191	0.197	0.448	0.510	0.388
Donations	-0.227	0.026	-0.002	-0.649	1.000	-0.464	-0.634	*-0.087*	-0.303	-0.392	-0.464	-0.476
Govt	-0.136	-0.003	-0.027	-0.002	-0.423	1.000	0.361	0.094	0.228	0.368	0.213	0.301
Admin	0.055	-0.028	0.091	0.503	-0.561	0.283	1.000	0.142	0.434	0.387	0.461	0.309
Debt	-0.179	-0.044	-0.018	0.196	-0.091	-0.004	0.123	1.000	0.345	0.045	0.223	0.172
PPE	-0.256	-0.025	-0.014	0.222	-0.227	0.129	0.404	0.297	1.000	0.145	0.117	0.295
Endow	-0.026	0.179	0.075	0.311	-0.261	0.179	0.213	0.027	0.002	1.000	0.444	0.383
Size	0.349	0.011	0.203	0.463	-0.454	*0.083*	0.410	0.182	0.119	0.322	1.000	0.257
Age	0.097	0.056	-0.029	0.400	-0.470	0.210	0.289	0.166	0.199	0.240	0.252	1.000

Note. N = 467 NFP-year observations. Pearson (Spearman rank) correlation coefficients are below (above) the diagonal. Coefficients in gray are not significant ($p > 0.10$). Coefficients in italics are significant ($p < 0.10$). Coefficients in regular font are significant ($p < 0.05$). All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Regression results

Table 9 provides the regression results for Equation (1), the test for H1 on NFPs with *ORR* below and within the recommended range. I summarize the full model (Col 4) here. *PostXBelow* is positive (0.51), suggesting that NFPs with insufficient reserves prior to the disclosure mandate increase the number of months of reserves post-mandate. However, this increase is not statistically significant ($p > 0.10$). Thus, there is no incremental increase in NFPs with *ORR* below recommended levels in the post-period, and H1 is not supported. Analysis of the control variables in Equation (1) indicate a positive, significant relation between *ORR* and *OpMargin* ($p < 0.01$) and *RevDiv* ($p < 0.05$) for NFPs with reserves within and below the recommended range. Contrary to expectations, *ORR* and *Size* are positively related for NFPs with reserves within and below the recommended range. Thus, of the NFPs below and within range, the larger, more profitable NFPs with diversified revenue maintain higher operating reserves. A significant, negative relation exists between *ORR* and *PPE* ($p < 0.01$) and *Endow* ($p < 0.05$), indicating that NFPs within and below the recommended range with larger amounts of fixed and restricted assets maintain lower operating reserves.

Table 9

Regression Results: NFPs with ORR Below and Within Recommended Range (H1)

	Predicted Sign	(1) *ORR*	(2) *ORR*	(3) *ORR*	(4) *ORR*
Post		0.448*	-0.082	0.276	0.211
		(1.36)	(-0.15)	(0.56)	(0.43)
Below			-7.950***	-6.648***	-6.392***
			(-8.37)	(-7.28)	(-7.56)
PostXBelow	+		0.986*	0.513	0.508
			(1.47)	(0.83)	(0.81)
OpMargin	+			5.444***	5.435***
				(4.53)	(4.46)
RevDiv	+/-			4.092*	5.154**
				(1.60)	(2.07)
Donations	-			1.067	1.447
				(0.40)	(0.51)
Govt	-			0.874	1.078
				(0.35)	(0.40)
Admin	+			1.989	4.017
				(0.20)	(0.40)
Debt	-			0.339	0.670
				(0.37)	(0.75)
PPE	-			-9.398***	-9.406***
				(-3.26)	(-3.30)
Endow	-			-2.327**	-2.029**
				(-2.3)	(-2.07)
Size	-			0.619	0.718
				(1.84)	(2.01)
Age	+			-0.040	-0.035
				(-2.38)	(-2.07)
Subsector Fixed Effects					X
Cluster Std Errors		X	X	X	X
Pre-Period Observations		301	301	301	301
Post-Period Observations		111	111	111	111
N		412	412	412	412
R-sq. (Overall)		0.002	0.428	0.488	0.571

Table 9 Continued

Note. Column 4 of this table reports estimates of the following regression:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable that is coded 0 in the pre-mandate period (fiscal years ended in 2014 through November 30, 2017) and 1 in the post-mandate period (fiscal years ended from December 31, 2018, through 2019). *Below* is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre-period and 1 if *ORR* is below the recommended range in the pre-period. A NFP is considered below the recommended range in the pre-period if *ORR* is less than three months for most fiscal years between 2014- November 30, 2017. The independent variable of interest is the interaction of *PostXBelow,* which provides the incremental effect of the disclosure on those NFPs below the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (one-tailed)

Table 10 provides the regression results for Equation (2), the test for H2 on NFPs with *ORR* above and within the recommended range. I summarize the full model (Col 4) here. The coefficient on *PostXAbove* is negative (-5.25) and significant ($p < 0.05$), suggesting that NFPs with excessive reserves prior to the disclosure mandate decrease *ORR* by 5.25 months after the mandate. This is incremental to NFPs within the optimal range in the pre-period. Thus, H2 is supported. Like in Equation (1), analysis of the control variables in Equation (2) indicates a positive, significant relation between *ORR* and *OpMargin* ($p < 0.01$) and *RevDiv* ($p < 0.05$). *Size* has an unexpected positive relation with *ORR*. Therefore, of the NFPs above and within range, the larger, more profitable NFPs with diversified revenue maintain higher operating reserves. A significant, negative relation exists between *ORR* and *PPE* ($p < 0.05$) and *Debt* ($p < 0.05$), indicating that NFPs within and above the recommended range that hold debt and have larger amounts of fixed assets maintain lower operating reserves.

Table 10

Regression Results: NFPs with ORR Within and Above Recommended Range (H2)

	Predicted Sign	(1) *ORR*	(2) *ORR*	(3) *ORR*	(4) *ORR*
Post		-1.516*	-0.081	-0.628	-0.793
		(-1.55)	(-0.14)	(-1.00)	(-1.18)
Above			54.935***	41.746***	38.996***
			(5.36)	(4.49)	(4.03)
PostXAbove	-		-6.017**	-5.263**	-5.250**
			(-1.80)	(-1.79)	(-1.76)
OpMargin	+			8.328***	8.506***
				(2.58)	(2.61)
RevDiv	+/-			6.877**	7.497**
				(1.94)	(2.01)
Donations	-			-6.736	-6.412
				(-1.00)	(-0.92)
Govt	-			-6.998	-3.554
				(-1.13)	(-0.48)
Admin	+			-22.099	-21.982
				(-0.50)	(-0.47)
Debt	-			-9.875**	-9.862**
				(-1.81)	(-1.74)
PPE	-			-14.528**	-14.436**
				(-2.24)	(-2.22)
Endow	-			1.244	1.561
				(0.24)	(0.29)
Size	-			5.562	5.936
				(2.42)	(2.45)
Age	+			0.022	0.048
				(0.35)	(0.66)
Subsector Fixed Effects					X
Cluster Std Errors		X	X	X	X
Pre-Period Observations		175	175	175	175
Post-Period Observations		68	68	68	68
N		243	243	243	243
R-sq. (Overall)		0.000	0.633	0.663	0.670

Table 10 Continued

Note. Column 4 of this table reports estimates of the following regression:

$$ORR_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable that is coded 0 in the pre-mandate period (fiscal years ended in 2014 through November 30, 2017) and 1 in the post-mandate period (fiscal years ended from December 31, 2018, through 2019). *Above* is an indicator variable coded 0 if the NFP's ORR is within the recommended range in the pre- period and 1 if *ORR* is above the recommended range in the pre-period. A NFP is considered above the recommended range in the pre-period if *ORR* is more than twenty-four months for most fiscal years between 2014-November 30, 2017. The independent variable of interest is the interaction of *PostXAbove,* which provides the incremental effect of the disclosure on those NFPs above the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ (one-tailed)

Overall, these results suggest that NFPs with excessive reserves prior to ASU 2016-14 decrease reserves over five months (-8.4%) after the disclosure change. However, NFPs with insufficient reserves prior to the disclosure change do not significantly increase reserves after the disclosure change when considering fiscal year-ends from 2014 to 2019.

VI. SUPPLEMENTAL TESTS

Balanced Sample

I conduct several sensitivity tests to determine the robustness of the main results.[16] First, I create a balanced panel for each subsample by dropping observations with fiscal year-ends before December 31, 2016, and after November 30, 2019. The pre-period includes fiscal years ended December 31, 2016, to November 30, 2017, and the post-period includes fiscal years

[16] Liquidity likely adjusts slowly over time. Thus, my main tests estimate the number of months NFPs increase or decrease *towards* the recommended range. However, I also run my analyses with a logit model, predicting the probability of a NFP moving from outside the recommended range *to* the recommended range. The results are not statistically significant at the conventional level.

ended December 31, 2018, to November 30, 2019. The transition period (December 31, 2017 – November 30, 2018) is still excluded from the sample. Each NFP in the sample has one pre-period observation and one post-period observation. Thus, the balanced panel offers examination of liquidity in the financial statement issued just before the transition period and right after the disclosure change.

Table 11 presents the results of Equation (1) and (2) for the balanced panels. The coefficient on *PostXBelow* is positive (1.13) and significant ($p < 0.01$), suggesting that NFPs with insufficient reserves prior to the disclosure mandate increase reserves by 1.16 months post-mandate. Thus, unlike in the main test, H1 is supported when the sample includes fiscal years-ended from December 31, 2016, to November 30, 2019. The coefficient on *PostXAbove* is negative (-3.54) and significant ($p < 0.10$), suggesting that NFPs with excessive reserves prior to the disclosure mandate decrease *ORR* by 3.5 months post-mandate. Thus, as in the main test, H2 is supported when the sample includes fiscal years-ended from December 31, 2016, to November 30, 2019. The weaker effect is likely due to a sixty percent decrease in observations for the above group in the balanced sample when compared to the unbalanced sample.

Table 11

Sensitivity Tests: Balanced Panel: 12/31/16-11/30/2019

	H1: Below and Within Recommended	H2: Above and Within Recommended
	ORR	*ORR*
Post	-0.459*	-0.739*
	(-1.37)	(-1.38)
Below	-6.864***	
	(-6.68)	
PostXBelow	1.126***	
	(2.60)	
Above		40.889***
		(4.05)
PostXAbove		-3.538*
		(-1.33)
Controls	X	X
Subsector Fixed Effects	X	X
Cluster Std Errors	X	X
Pre-Period Observations	82	49
Post-Period Observations	82	49
N	164	98
R-sq. (Overall)	0.554	0.680

Note. This table reports estimates of the following regression for H1 (Col 1):

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

This table reports estimates of the following regression for H2 (Col 2):

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

Table 11 Continued

Note. The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable that is coded 0 in the pre-mandate period (fiscal years ended in 12/31/2016 through 11/30/17) and 1 in the post-mandate period (fiscal years ended in 12/31/18 through 11/30/19). *Below* (*Above*) is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre- period and 1 if *ORR* is below (above) the recommended range in the pre-period. A NFP is considered below (above) the recommended range if *ORR* is less than three months (more than twenty-four months) for most fiscal years in the pre-period. The independent variable of interest is the interaction of *PostXBelow* (*PostXAbove*), which provides the incremental effect of the disclosure on those NFPs below (above) the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses.
*$p < 0.10$, **$p < 0.05$, *** $p < 0.01$ (one-tailed)

Figure 2 Panels A – C provide mean *ORR* by year for NFPs below, within, and above the recommended range, respectively. In Panel A an increase to ORR occurs after 2017 for those below the recommended range in the pre-period, suggesting these NFPs react in the year before the disclosure change. While, in Panel C a decrease occurs over several years of the pre-period to those above the recommended range, suggesting that these organizations may have anticipated the disclosure change. Accordingly, H1 is significant ($p < 0.01$) with a balanced panel sample including only fiscal years ending December 31, 2016, to December 31, 2018, and H2 is significant ($p < 0.05$) with the unbalanced panel including all fiscal years ending in 2014 through 2019.

Figure 2

Mean ORR by Year

Panel A: NFPs below the recommended range

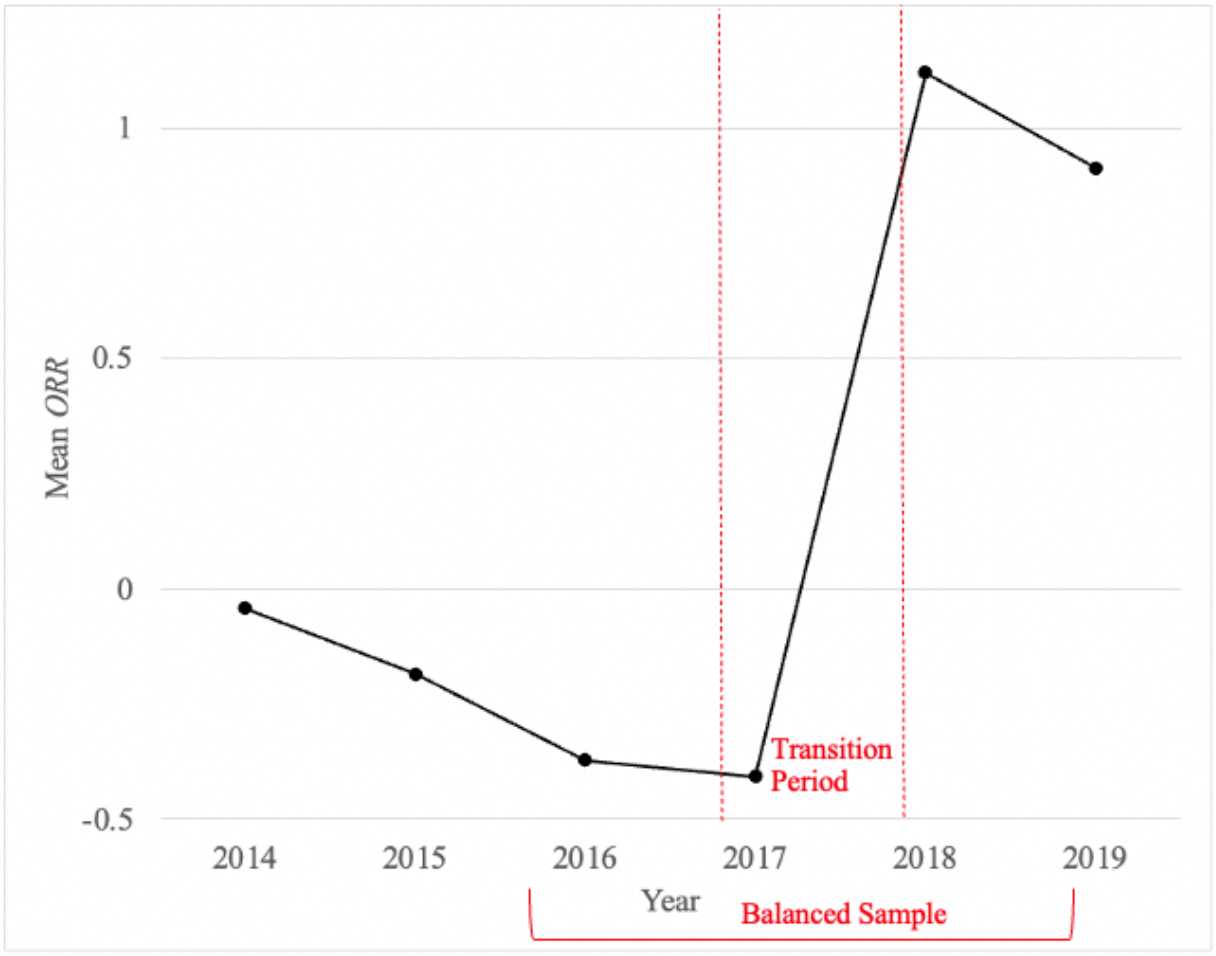


Figure 2 Continued

Panel B: NFPs within the recommended range

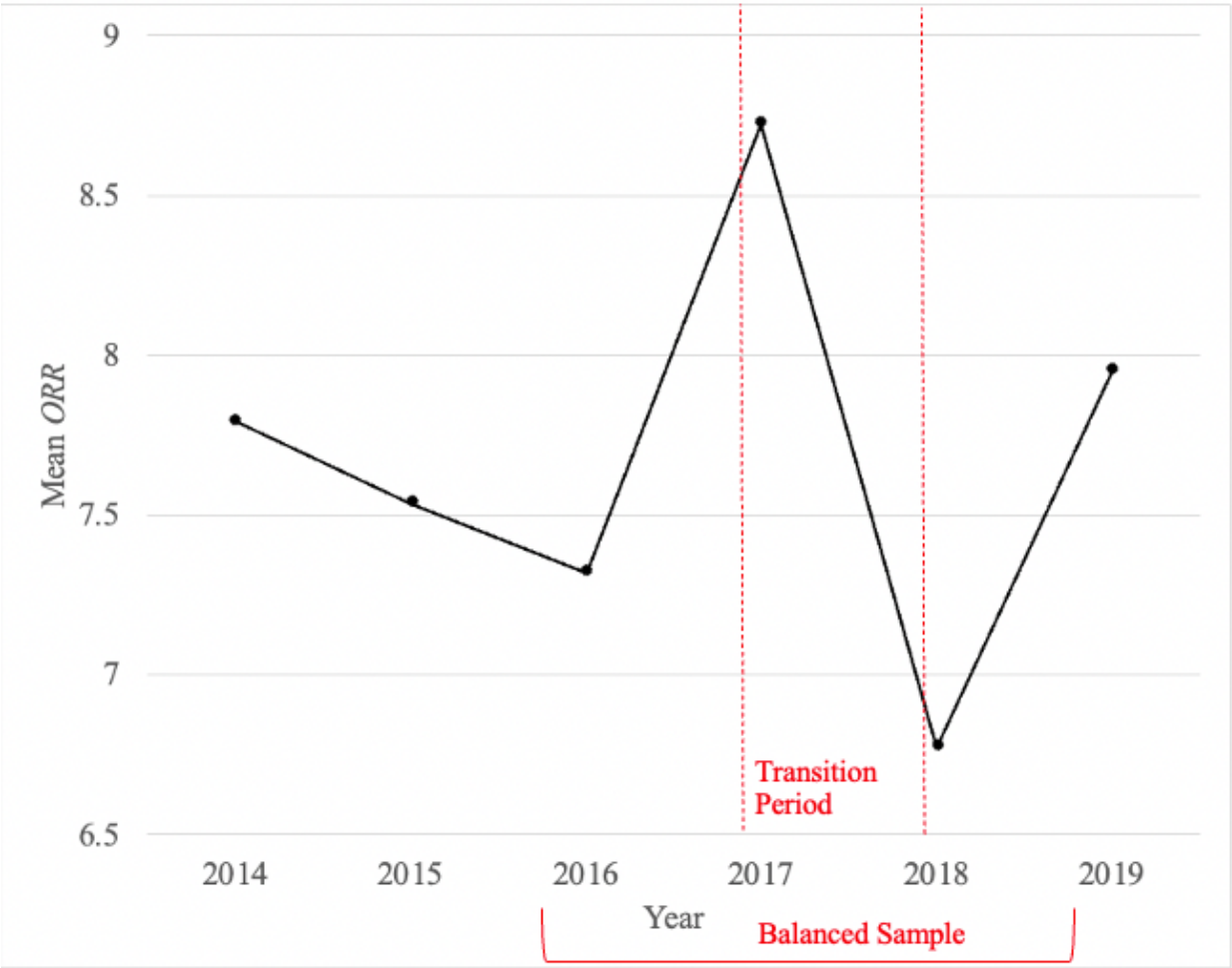
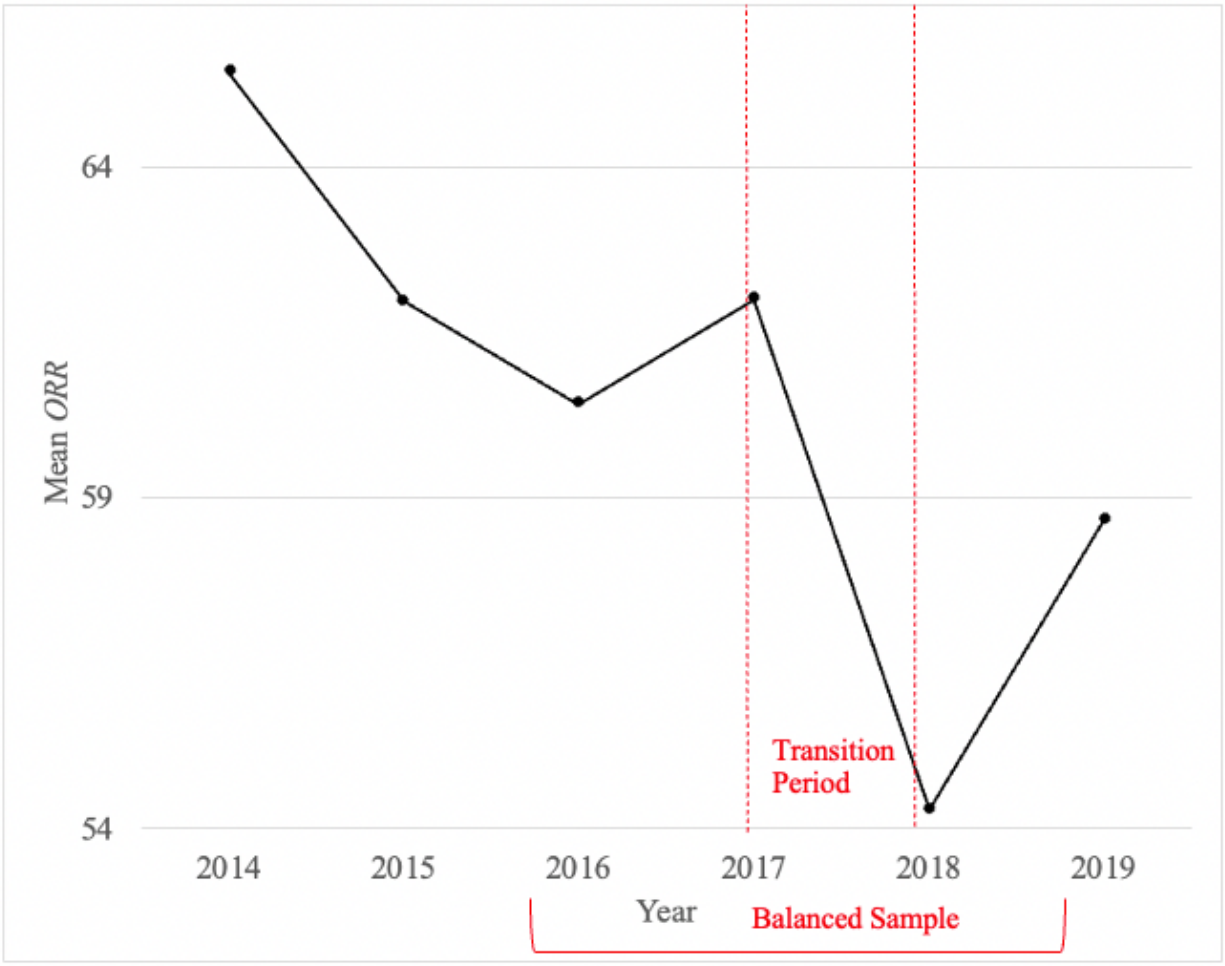


Figure 2 Continued

Panel C: NFPs above the recommended range



Alternate recommended range

In addition, I test the sensitivity of the recommended range of operating reserves. First, I change the method of grouping NFPs into below, within, and above the recommended range by using mean and median. Specifically, a NFP is considered below (above) the recommended range in the pre-period if mean *ORR* in the pre-period is less than three (more than twenty-four) months. In a separate analysis, a NFP is considered below (above) the recommended range in the pre-period if median *ORR* in the pre-period is less than three (more than twenty-four) months.

Table 12 presents the results of Equation (1) and (2) with the mean and median groupings. The coefficient on *PostXBelow* is positive using both mean (0.47 months) and median (0.48 months) but not statistically significant ($p > 0.10$). Thus, as in the main test, H1 is not supported when mean or median *ORR* is used in the pre-period to group NFPs into below, within, and above categories. The coefficient on *PostXAbove* is negative using both mean (-4.07 months; $p < 0.10$) and median (-5.01 months; $p < 0.05$) and significant, suggesting that NFPs with excessive reserves prior to the disclosure mandate decrease *ORR* by over four months post-mandate. Thus, as in the main test, H2 is supported when mean and median are used in the pre-period to group NFPs into below, within, and above categories.

Table 12

Sensitivity Tests: Alternate Measures for the Recommended Range

	H1: Below and Within Recommended Range		H2: Above and Within Recommended Range	
	Average *ORR*	Median *ORR*	Average *ORR*	Median *ORR*
Post	0.117	0.218	-1.277*	-1.136*
	(0.16)	(0.40)	(-1.53)	(-1.61)
Below	-6.929***	-6.692***		
	(-8.05)	(-7.45)		
PostXBelow	0.471	0.476		
	(0.59)	(0.72)		
Above			37.779***	36.581***
			(3.83)	(3.71)
PostXAbove			-4.071*	-5.014**
			(-1.39)	(-1.70)
Controls	X	X	X	X
Subsector Fixed Effects	X	X	X	X
Cluster Std Errors	X	X	X	X
Pre-Period Observations	300	301	163	159
Post-Period Observations	112	111	65	64
N	412	412	228	223
R-sq. (Overall)	0.592	0.575	0.667	0.653

Note. This table reports estimates of the following regression for H1:

$$ORR_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

This table reports estimates of the following regression for H2:

$$ORR_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

Table 12 Continued

Note Continued. The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable that is coded 0 in the pre-mandate period (fiscal years ended in 2014 through November 30, 2017) and 1 in the post-mandate period (fiscal years ended from December 31, 2018 through 2019). *Below* (*Above*) is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre- period and 1 if *ORR* is below (above) the recommended range in the pre-period. In the Average columns, a NFP is considered below (above) the recommended range if average *ORR* is less than three months (more than twenty-four months) in the pre-period. In the Median columns, a NFP is considered below (above) the recommended range if the median *ORR* is less than three months (more than twenty-four months) in the pre-period. The independent variable of interest is the interaction of *PostXBelow* (*PostXAbove*), which provides the incremental effect of the disclosure on those NFPs below (above) the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses.
*$p < 0.10$, **$p < 0.05$, *** $p < 0.01$ (one-tailed)

I also run my analyses using a recommended range of operating reserves of six to thirty-six months and six to twenty-four months. The NORI Workgroup recommends a minimum reserve of three months of expenses (NORI 2008). However, BDO, a lead public accounting firm in the nonprofit sector, suggests a minimum operating reserve of six months (BDO 2019). On the other hand, Candid, a charity watch organization, recommends that NFPs hold no more than twenty-four months of operating expenses. However, NFPs are not penalized by lower charity ratings until operating reserves exceed thirty-six months of expenses (BBB; CharityWatch). Because guidelines differ slightly among practitioners, I analyze these variations in additional testing.

Table 13 presents the results of Equation (1) and (2) using a recommended range of six to thirty-six months with an unbalanced and balanced sample. In both the unbalanced and balanced sample, the coefficient on *PostXBelow* is positive and significant (unbalanced 2.18 $p < 0.05$; balanced 2.79 $p < 0.01$). Thus, H1 is supported when the recommended range is six to thirty-six

months. These results suggest NFPs with three to six months of reserves aim to increase reserves towards the recommended six months and do so in the post-disclosure period.

The coefficient on *PostXAbove* is not statistically significant in both the unbalanced sample and the balanced sample. Thus, H2, unlike in the main test, is not supported when the recommended range is six to thirty-six months. This change may be driven by loss of observations, as over twenty-seven percent move from the above group to the optimal group when using thirty-six months as the maximum recommended level of reserves. Further, *Post* is negative and significant ($p < 0.05$) in both H1 and H2 tests, indicating that the optimal group (NFPs with six to thirty-six months of reserves) is decreasing liquidity post-disclosure. *Post* is not significant in the main analysis, with a recommended range of three to twenty-four months.

Table 13

Sensitivity Tests: Recommended Range 6-36 Months

	H1: Below and Within		H2: Above and Within	
	Unbalanced	Balanced	Unbalanced	Balanced
	1/1/14 - 12/31/19	12/31/16 - 11/30/2019	1/1/14 - 12/31/19	12/31/16 - 11/30/2019
	ORR	*ORR*	*ORR*	*ORR*
Post	-1.603*	-2.340**	-3.421**	-2.73**
	(-1.29)	(-2.16)	(-2.07)	(-2.23)
Below	-11.446***	-12.079***		
	(-6.76)	(-7.47)		
PostXBelow	2.175**	2.790***		
	(1.68)	(2.58)		
Above			33.944***	44.814***
			(2.46)	(3.78)
PostXAbove			-0.985	2.13
			(-0.26)	(0.52)
Controls	X	X	X	X
Subsector Fixed Effects	X	X	X	X
Cluster Std Errors	X	X	X	X
Pre-Period Observations	311	85	103	29
Post-Period Observations	116	85	40	29
N	427	170	143	58
R-sq. (Overall)	0.655	0.668	0.689	0.792

Note. This table reports estimates of the following regression for H1:

$$ORR_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

This table reports estimates of the following regression for H2:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

Table 13 Continued

Note Continued. The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable that is coded 0 in the pre-mandate period and 1 in the post-mandate period. The pre-period for the unbalanced (balanced) sample is fiscal years ended in 2014 through November 30, 2017 (fiscal years ended December 31, 2016 through November 30, 2017). The post-period for the unbalanced (balanced) sample is fiscal years ended from December 31, 2018 through 2019 (fiscal years ended from December 31, 2018 through November 30, 2019). *Below* (*Above*) is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre-period and 1 if *ORR* is below (above) the recommended range in the pre-period. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than six (more than thirty-six) months for most fiscal years between 2014- November 30, 2017. The independent variable of interest is the interaction of *PostXBelow* (*PostXAbove*), which provides the incremental effect of the disclosure on those NFPs below (above) the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ (one-tailed)

Table 14 presents the results of Equation (1) and (2) using a recommended range of six to twenty-four months with an unbalanced and balanced sample. *PostXBelow* is positive with both samples, yet only significant in the balanced panel (1.56; $p < 0.01$). Thus, H1 is supported when the recommended range is six months to twenty-four months when comparing fiscal years just before the transition year and just after the disclosure change. *PostXAbove* is negative yet not significant in both the unbalanced and balanced samples. Thus, unlike in the main test, H2 is not supported when the recommended range is six to twenty-four months. Again, this could be driven by loss of observations, as the optimal group decreases over 55% when the recommended range is six to twenty-four months.

Table 14

Sensitivity Tests: Recommended Range 6 - 24 Months

	H1: Below and Within		H2: Above and Within	
	Unbalanced 1/1/14 - 12/31/19	Balanced 12/31/16 - 11/30/2019	Unbalanced 1/1/14 - 12/31/19	Balanced 12/31/16 - 11/30/2019
	ORR	*ORR*	*ORR*	*ORR*
Post	-0.567	-1.092**	-2.543**	-1.872**
	(-0.59)	(-1.72)	(-1.67)	(-1.79)
Below	-8.804***	-8.960***		
	(-6.69)	(-6.62)		
PostXBelow	1.303	1.559***		
	(1.27)	(2.37)		
Above			25.135***	27.926**
			(2.60)	(1.89)
PostXAbove			-3.594	-1.463
			(-1.17)	(-0.60)
Controls	X	X	X	X
Subsector Fixed Effects	X	X	X	X
Cluster Std Errors	X	X	X	X
Pre-Period Observations	302	82	99	28
Post-Period Observations	111	82	39	28
N	413	164	138	56
R-sq. (Overall)	0.607	0.576	0.594	0.638

Note. This table reports estimates of the following regression for H1:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

This table reports estimates of the following regression for H2:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

Table 14 Continued

Note Continued. The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable that is coded 0 in the pre-mandate period and 1 in the post-mandate period. The pre-period for the unbalanced (balanced) sample is fiscal years ended in 2014 through November 30, 2017 (fiscal years ended December 31, 2016 through November 30, 2017). The post-period for the unbalanced (balanced) sample is fiscal years ended from December 31, 2018 through 2019 (fiscal years ended from December 31, 2018 through November 30, 2019). *Below* (*Above*) is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre- period and 1 if *ORR* is below (above) the recommended range in the pre-period. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than six (more than twenty-four) months for most fiscal years between 2014- November 30, 2017. The independent variable of interest is the interaction of *PostXBelow* (*PostXAbove*), which provides the incremental effect of the disclosure on those NFPs below (above) the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses.
*$p < 0.10$, **$p < 0.05$, *** $p < 0.01$ (one-tailed)

Placebo Tests

I perform placebo tests to provide additional support that the changes to liquidity are a result of the liquidity disclosure. I re-estimate both Equation (1) and (2) with observations from December 31, 2014, through November 30, 2016, and then again for observations from December 31, 2015, through November 30, 2017. Each NFP has two observations in each sample subset. I replace *Post* with an indicator variable coded 0 for observations occurring in the first full fiscal-year in each of the new sample periods and 1 for observations occurring the last full fiscal-year in each of the new sample periods.

Table 15 presents the results of Equation (1) and (2) with the placebo tests. As expected, I do not find statistically significant coefficients on any of the interaction terms, strengthening the inference that the liquidity disclosure influences NFP liquidity for those NFPs with operating reserves outside of the recommended range.

Table 15

Sensitivity Tests: Placebo Tests

	H1: Below and Within Recommended Range		H2: Above and Within Recommended Range	
	12/31/14-11/30/16	12/31/2015 - 11/30/2017	12/31/14-11/30/16	12/31/2015 - 11/30/2017
	ORR	*ORR*	*ORR*	*ORR*
Post	-0.050	0.4689*	-0.810**	-0.235
	(-0.13)	(1.47)	(-2.00)	-0.42
Below	-6.847***	-6.957***		
	(7.81)	(-7.48)		
PostXBelow	0.234	-0.208		
	(0.57)	(-0.51)		
Above			43.086***	47.047***
			(3.70)	(4.29)
PostXAbove			-0.796	-0.751
			(-0.48)	(-0.43)
Controls	X	X	X	X
Subsector Fixed Effects	X	X	X	X
Cluster Std Errors	X	X	X	X
Pre-Period Observations	81	82	48	49
Post-Period Observations	81	82	48	49
N	162	164	96	98
R-sq. (Overall)	0.609	0.593	0.706	0.663

Note. This table reports estimates of the following regression for H1:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

This table reports estimates of the following regression for H2:

$$ORR_{i.t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

Table 15 Continued

Note Continued. Each equation is estimated with observations from fiscal years ended in December 31, 2014, through November 30, 2016, and then again with observations from fiscal years ended in December 31, 2015, through November 30, 2017. The dependent variable is *ORR*, the number of months a nonprofit could cover expenses with accumulated unrestricted reserves. *Post* is an indicator variable coded 0 for observations occurring in the first full fiscal-year in each sample period and 1 for observations occurring in the last full fiscal-year in each sample period. *Below* (*Above*) is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre- period and 1 if *ORR* is below (above) the recommended range in the pre-period. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than three months (more than twenty-four months) for most fiscal years in the pre-period. The independent variable of interest is the interaction of *PostXBelow* (*PostXAbove*), which provides the incremental effect of the disclosure on those NFPs below (above) the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses. *$p < 0.10$, **$p < 0.05$, *** $p < 0.01$ (one-tailed)

Breakdown of ORR

Lastly, I analyze the variables that derive *ORR* to understand how NFPs are managing liquidity as a result of the disclosure. Table 16 provides descriptive statistics on the variables included in *ORR* partitioned by the pre- and post-period for NFPs below and above the recommended reserve range. An analysis of variables before and after the disclosure change indicates NFPs in the below category significantly increase *UNA – PPE net of debt*, the numerator of *ORR*, from an average of -$10.94 ($7.76 median) million in the pre-period to $30.15 ($24.66 median) million in the post-period ($p < 0.10$). In addition, the median level of *Cash*, or the ratio of cash to total assets, significantly increases from 13.3% in the pre-period to 18.5% in the post-period ($p < 0.10$). NFPs in the above category significantly increase *Total Exp – Dep*, the denominator of *ORR*, from a median of $173. 47 million in the pre-period to $304.75 million in the post-period ($p < 0.10$).

Table 16

Additional Descriptives for Below and Above NFPs by Pre- and Post-Mandate

	Below Range Less than 3 Months				Above Range More than 24 Months			
	Pre-Mandate (N= 164)		Post-Mandate (N=60)		Pre-Mandate (N= 38)		Post-Mandate (N=17)	
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median
UNA-PPE net of debt	**-10.941**	**7.758**	**30.152**	**24.662**	1354.088	691.202	1770.338	823.855
Total Exp - Dep	486.836	280.464	498.514	302.841	239.960	**173.471**	338.424	**304.746**
UNA	88.483	46.336	120.314	44.681	1481.945	692.038	1921.755	824.244
Cash	0.200	**0.133**	0.239	**0.185**	0.037	0.035	0.053	0.051
PPE	0.190	0.113	0.175	0.084	0.040	0.018	0.040	0.017
Financial Debt Out	0.218	0.094	0.165	0.047	0.122	0.000	0.078	0.000
Contribution Rev	0.818	0.971	0.844	0.975	0.668	0.732	0.619	0.699
Investment Rev	**0.006**	**0.003**	**0.008**	**0.005**	0.096	0.063	0.082	0.027
Program Rev	0.150	0.009	0.131	0.006	0.122	0.028	0.155	0.099
Admin	0.057	0.047	0.050	0.037	0.065	0.052	0.075	0.078
Program Exp	0.899	0.899	0.911	0.929	0.870	0.856	0.854	0.833
Fundraising	0.043	0.033	0.038	0.023	0.066	0.076	0.071	0.080

Note. The sample period includes fiscal years ended in 2014 through November 30, 2017 (pre-mandate), and December 31, 2018, through 2019 (post-mandate). The recommended range for *ORR* is three to twenty-four months. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than three months (more than twenty-four months) for most fiscal years between 2014 – November 30, 2017. T-tests and Wilcoxon tests were performed for differences between pre and post, and numbers in bold represent a significant difference at $p < 0.10$. All continuous variables are winsorized at the 1 percent level to reduce the influence of outliers. See Appendix I for variable definitions.

Table 17 presents the results of Equation (1) and (2) re-estimated with *UNA – PPE net of debt*, the numerator of *ORR*, and then with *Total Exp – Dep*, the denominator of *ORR*, as the dependent variables. The coefficient on *PostXBelow* is positive yet not significant ($p > 0.10$) when using the numerator of *ORR* and the denominator of *ORR* as dependent variables in the model. However, *PostXAbove* is positive and significant with both the numerator (188.04; $p < 0.10$) and the denominator (56.82; $p < 0.05$) of *ORR* as dependent variables.

Table 17

Sensitivity Tests: Split Dependent Variable

	H1: Below and Within Recommended Range		H2: Above and Within Recommended Range	
	UNA - PPE net of debt	*Total Exp - Dep*	*UNA - PPE net of debt*	*Total Exp - Dep*
Post	23.002**	-0.532	-35.206*	7.242
	(1.67)	(0.49)	(-1.51)	(0.77)
Below	-158.736***	19.791***		
	(-4.19)	(2.43)		
PostXBelow	0.807	2.141		
	(0.05)	(1.11)		
Above			509.934*	-240.979***
			(1.55)	(-4.43)
PostXAbove			188.036*	56.819**
			(1.41)	(2.31)
Controls	X	X	X	X
Subsector Fixed Effects	X	X	X	X
Cluster Std Errors	X	X	X	X
Pre-Period Observations	301	301	175	175
Post-Period Observations	111	111	68	68
N	412	412	243	243
R-sq. (Overall)	0.421	0.399	0.585	0.652

Table 17 Continued

Note. Equation 1 and Equation 2 are re-estimated using only the numerator of *ORR* (*UNA - PPE net of debt*) and then the denominator of *ORR* (*Total Exp - Dep*). *UNA - PPE net of debt* is unrestricted net assets, less property, plant and equipment net of debt. *Total Exp - Dep* is total functional expenses less depreciation expense.
The following two equations were estimated for H1:

1 $$UNA - PPE\ net\ of\ debt_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

2 $$Total\ Exp - Dep_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Below_i + \beta_3 PostXBelow_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

The following two equations were estimated for H2:

1 $$UNA - PPE\ net\ of\ debt_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

2 $$Total\ Exp - Dep_{i,t} = \alpha + \beta_1 Post_{i,t} + \beta_2 Above_i + \beta_3 PostXAbove_{i,t} + \beta_4 OpMargin_{i,t} + \beta_5 RevDiv_{i,t} + \beta_6 Donations_{i,t} + \beta_7 Govt_{i,t} + \beta_8 Admin_{i,t} + \beta_9 Debt_i + \beta_{10} PPE_{i,t} + \beta_{11} Endow_{i,t} + \beta_{12} Size_{i,t} + \beta_{13} Age_{i,t} + Subsectorfixedeffects + \varepsilon_{i,t}$$

Post is an indicator variable that is coded 0 in the pre-mandate period (fiscal years ended in 2014 through November 30, 2017) and 1 in the post-mandate period (fiscal years ended from December 31, 2018 through 2019). *Below* (*Above*) is an indicator variable coded 0 if the NFP's *ORR* is within the recommended range in the pre- period and 1 if *ORR* is below (above) the recommended range in the pre-period. A NFP is considered below (above) the recommended range in the pre-period if *ORR* is less than three months (more than twenty-four months) for most fiscal years in the pre-period. The independent variable of interest is the interaction of *PostXBelow* (*PostXAbove*), which provides the incremental effect of the disclosure on those NFPs below (above) the recommended range. See Appendix 1 for variable definitions. Z statistics are in parentheses.
*$p < 0.10$, **$p < 0.05$, *** $p < 0.01$ (one-tailed)

These results of Table 16 and 17 suggest that NFPs in the below category increase cash balances to increase operating reserves. While NFPs in the above category are also increasing liquid assets, they appear to significantly increase expenses in the post-period to decrease liquidity levels.

VII. CONCLUSION

Determining the appropriate level of liquidity is a critical decision for NFP organizations. While NFPs need liquid resources to reduce financial vulnerability, the success of a NFP is based on its ability to fulfill its mission rather than to accumulate funds. Practitioners in the NFP sector recommend that organizations maintain a minimum of three to six months, but no more than two to three years of annual expenses in operating reserves, or liquid unrestricted net assets (NORI 2008; Candid(b); BDO; BBB; CharityWatch). This study examines whether the increased salience of liquidity in financial reporting as a result of ASU 2016-14 influences NFPs to manage operating reserves more closely to NFP sector guidelines.

I find that NFPs with excessive operating reserves prior to the disclosure mandate significantly decrease reserves by over five months of annual expenses after the disclosure mandate. While NFPs with insufficient reserves prior to the disclosure mandate do not significantly increase reserves from 2014 to 2019, they do increase reserves significantly by 1.16 months over the years just before and just after the disclosure mandate. These results suggest that increasing the transparency of liquidity in NFP financial reporting influences management to improve organizational liquidity.

This study is important in understanding the economic consequences of accounting standards, as it examines the effects of mandatory disclosure in a new setting, the NFP sector. My design exploits an exogenous mandatory disclosure change and uses a within-organization approach across a relatively short time interval to help mitigate bias. In addition, this study

contributes to NFP research by expanding our understanding of operating reserves and liquidity management. Accounting regulators (FASB), the NFP community (e.g., NAC, NORI Workgroup, accounting firms with NFP clients, and charity watch groups), and financial statement users should be interested in the changes to liquidity from this disclosure.

This study is subject to limitations. I examine the economic effects on liquidity, but do not examine the underlying frameworks, agency with information asymmetry and learning with information uncertainty. Because managers' information sets are unobservable, I am unable to explain why NFPs may alter behavior in response to the disclosure. In addition, my sample is drawn from the top 100 revenue generating NFPs in the US, thus is not representative of the whole NFP sector.

Future work on this study will include data collection for additional years beyond 2019. Because NFPs received an extension on filing 990s in 2020 due to Covid-19, the data for 2020 and 2021 were not available during data analysis. Future research in this area should consider how financial statement users, such as donors, charity rating agencies, and creditors, are influenced by the change in liquidity disclosure. Further, additional research could examine if the disclosure requirements improve NFP liquidity in times of financial crisis. Lastly, the disclosure requires NFPs to disclose both quantitatively and qualitative information. Future research could examine the qualitative disclosures to gain an understanding of how NFPs manage liquidity.

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LIST OF APPENDICES

Appendix I

Variable Definitions

Above = indicator variable coded 0 if *ORR* is between three and twenty-four months for most years in the pre-period and 1 if ORR is more than twenty-four months for most years in the pre-period

Administrative ratio (*Admin*) = management and general expenses (statement of functional expenses, line 25(C)/total functional expenses

Age = fiscal year-end - ruling date

Below = indicator variable coded 0 if *ORR* is between three and twenty-four months for most years in the pre-period and 1 if ORR is less than three months for most years in the pre-period

Cash = (non-interest bearing cash + savings and temporary cash investments) / total assets

Contribution revenue (*Contribution rev)* = gross contributions* / total revenue

Debt = indicator variable coded 1 if NFP has financial debt (balance sheet, line 20 and 23) outstanding in 990s filed between 2012 to 2019

Donations = all other contributions (statement of revenue, line 1f) / total revenue

Endowment (*Endow*) = restricted assets / total assets

Financial Debt Outstanding *(Financial Debt Out)* = (secured mortgages and notes payable + tax-exempt bond liabilities) / total liabilities

Fundraising = fundraising expenses / total functional expenses

Government funding (*Govt*) = government grants (statement of revenue, line 1e) / total revenue

Investment rev = investment income*** / total revenue

Appendix I Continued

Operating margin (*OpMargin*) = (revenue - expense)/ revenue

Operating reserve ratio (*ORR*) = [unrestricted net assets - property, plant, and equipment, net of long-term debt] / [(total expenses - depreciation)/12)]

Operating reserve ratio (*ORR*) by 990 line item = [balance sheet, line 27b (unrestricted net assets) - line 10c (land, buildings, and equipment) - line 23b (secured mortgages) - line 20b (tax-exempt bond)] / [(statement of functional expenses, line 25A (total functional expenses) - line 22A (depreciation)) / 12 (months)]

Post = indicator variable coded 0 in fiscal years ending 2014 - November 30, 2017 and 1 in fiscal years ending December 31, 2018 - 2019

PPE = property, plant, and equipment / total assets

Program expense (*Program exp*) = program expenses / total functional expenses

Program revenue *(Program rev)* = earned income** / total revenue

Revenue Diversification (*RevDiv*) = [1 - ((gross contributions*/total revenue)^2 + (earned income** /total revenue)2 + (investment income***/total revenue)2)] / [(3-1)/3]

*Gross contributions (990 statement of revenue) = total contributions and gifts (line 1h) + net income from fundraising (line 8c)

**Earned income (990 statement of revenue) = total program revenue (line2g) + royalty income (line 5) + net rental income (line 6d) + net gain or loss from sales of other assets (line 7d) + net income from gaming (line 9c) + net income from sales of inventory (line 10c) + miscellaneous revenue (line 11e)

***Investment income (990 statement of revenue) = investment income (line 3) + income from investment of tax-exempt bond proceeds (line 4)

Size = log(total assets)

Total Exp - Dep = total expenses - depreciation

UNA = unrestricted net assets

UNA - PPE net of debt = unrestricted net assets - (property, plant, and equipment - long term debt)

Appendix II

Example of NFP Liquidity and Availability of Asset Disclosure

Panel A: Example of NFP Liquidity Disclosure

Goodwill Industries International June 30, 2019

Liquidity and Availability
The Organization strives to maintain liquid financial assets sufficient to meet its general operating expenditures. The Organization has investments to cover its reserve needs per its target reserve policy. The purpose of the target reserve policy is to ensure that the Organization has the financial means to continue to provide critical support to the membership in both the short- and long-term and to develop products and services in support of members. The Organization reassesses the adequacy of its reserves on an annual basis.

The following table reflects the Organization's financial assets as of December 31, 2019 and 2018, reduced by amounts that are not available to meet general expenditures within one year of the consolidating statement of financial position date because of loan covenants or internal board designations. Amounts not available include a board-designated special projects fund that is intended to fund special board initiatives not considered in the annual operating budget. In the event the need arises to utilize the board-designated funds for liquidity purposes, the reserves could be drawn upon through the board target reserve policy. Amounts not available to meet general expenditures within one year also include net assets with donor restrictions. However, such funds are in highly liquid investments in order to preserve capital and are available to support sponsored programs once the purpose restrictions are met.

	2019	2018
Cash and cash equivalents	$ 2,994,498	$ 3,517,376
Investments	14,734,349	14,868,284
Accounts receivable and grants receivable	5,863,136	5,336,929
Pledges receivable	1,560,243	156,500
Accounts payable to subrecipients	(4,745,778)	(5,375,208)
Cash collateral related to notes payable	-	(1,000,000)
Net assets with donor restrictions	(10,696,069)	(9,064,465)
Board-designated special projects fund	(955,370)	(955,370)
Financial assets available to meet cash needs For general expenditure within one year *	$ 8,755,009	$ 7,484,046

*GMJCS financial assets are included in this amount. GMJCS financial assets available to meet cash needs for general expenditure within one year were $917,672 and $16,009 as of December 31, 2019 and 2018 respectively.

Appendix II Continued

Example of NFP Liquidity and Availability of Asset Disclosure

Panel B: Example of NFP Liquidity Disclosure

St. Jude Children's Research Hospital, Inc. American Lebanese Syrian Associated Charities, Inc.
June 30, 2019

Liquidity and Availability
Financial assets available for general expenditure, that is, without donor or other restrictions limiting their use, within one year of the balance sheet date, comprise the following:

Financial assets at year end:	
Cash and cash equivalents	$ 147,098,745
Receivables	86,785,450
Assets limited as to use	2,370,565
Unrestricted investments	3,908,880,476
Restricted investments	1,139,221,470
Total financial assets	5,284,356,706
Less amounts not available to be used within one year:	
Assets limited as to use	(2,370,565)
Restricted investments	(1,139,221,470)
Board-designated endowments	(103,673,358)
Receivables not due within one year	(795,268)
Financial assets available within one year	$ 4,038,296,045

The Organization maintains cash balances to meet the short-term operating needs of the Hospital, plus funding for construction project needs within one year of the balance sheet date. Cash balances that exceed those needs are transferred to the investment custodian as unrestricted investments. ALSAC also maintains two lines of credit totaling $50,000,000 as described in footnote 19.

VITA

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EDUCATION AND PROFESSIONAL CERTIFICATIONS

University of Mississippi, Oxford, Mississippi — Anticipated May 2023
Degree: Doctor of Philosophy, Accountancy, GPA 4.0

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Degree: Master of Accountancy, GPA 4.0

Delta State University, Cleveland, Mississippi — December 2007
Major: Accounting, GPA 4.0, graduated summa cum laude

Certified Public Accountant, Mississippi

RESEARCH

Primary Method: Archival
Interests: Financial Accounting, Managerial Accounting, Nonprofit Organizations

Working papers and Works in Progress:
"The Effect of Mandated Disclosure on Liquidity Among Not-for-Profit Organizations"
Dissertation Committee: Dr. Rachna Prakash (chair), Dr. Morris Stocks, Dr. Brett Cantrell, Dr. John Bentley
Successfully Defended: April 14, 2023

"Is Geography a Competitive Advantage? The Association between Location and Managerial Ability"
Second summer paper advisor: Dr. Vicki Dickinson

Presentations:
"The Effect of Mandated Disclosure on Liquidity Among Not-for-Profit Organizations"

- University of Mississippi: Dissertation Defense 4/14/23

"The Effect of Not-for-Profit Mandated Disclosure on Liquidity and Availability of Resources"

- Samford University: Research Workshop 9/28/22
- University of North Alabama: Research Workshop 9/23/22
- Mississippi State University: Research Workshop 9/19/22

- Western Kentucky University: Research Workshop 9/12/22
- Belmont University: Research Workshop 9/9/22
- University of Mississippi: Dissertation Proposal 9/2/22

Research Assistant: The University of Mississippi
- Spring 2016: Dr. Mark Wilder (University of MS) and Dr. Tyler Williams (Bentley University)

TEACHING

Interests: Financial Accounting, Managerial Accounting, Government and Nonprofit Accounting, Accounting Systems

Instructor Experience: The University of Mississippi
- Cost Accounting
  Fall 2022 – 2 sections (50 and 63 students)
  Spring 2022 – 1 section (34 students)
  Fall 2021 – 1 section (59 students)
- Introduction to Managerial Accounting
  May Intersession 2021 – 1 section (9 students)
  Spring 2021 (Remote) – 2 sections (60 and 46 students)
  May Intersession 2020 (Remote) – 1 section (8 students)
  Spring 2020 (Partially Remote) – 1 section (60 students)
- Introduction to Financial Accounting
  Fall 2017 – 2 sections (59 and 57 students)

Teaching Assistant: The University of Mississippi
- Accounting Information Processes and Analytics *(Spring 2022)*
- Becker CPA Review Course *(Spring 2017 and Spring 2018)*
- Intermediate II *(Spring 2017)*
- Intermediate I *(Fall 2016)*

CONFERENCE PARTICIPATION

GNP Midyear Meeting	2023
AAA Annual Meeting (Moderator and GNP Mentor/Mentee Program)	2022
GNP Midyear Meeting (Recipient of GNP Travel Grant)	2022
AAA Financial Accounting Research Midyear Meeting	2022
AAA Annual Meeting (Virtual)	2021
AAA/Deloitte Foundation/J. Michael Cook Doctoral Consortium	2018
AAA Financial Accounting Research Mid-Year Meeting (Doctoral Consortium)	2018
University of Alabama Archival Accounting Conference	2018

PROFESSIONAL EXPERIENCE

Asurion, Nashville, Tennessee October 2011 – January 2016
Manager, Corporate Consolidations and Reporting

Crowe Horwath LLP, Brentwood, Tennessee — January 2010 – September 2011
Senior Auditor

Federal Express, Memphis, Tennessee — January 2008 – July 2008
Internal Audit Intern

Deloitte & Touche LLP, Memphis, Tennessee — Summer 2007
Audit Intern

AWARDS AND HONORS

The University of Mississippi Graduate School Dissertation Fellowship	Spring 2023
University of Mississippi Beta Alpha Psi Honor Society	2008-2009
Delta State University Student Hall of Fame	2007
Delta State University Orientation Leader	2007
Delta State University Accounting Honor Society	2007
Delta State University Omicron Delta Kappa Honor Society	2007
Delta State University Phi Kappa Phi Honor Society	2007
Mississippi Society of CPAs Hamp King Award Winner	2007
Delta State University Honors Fellow	2004-2007

PROFESSIONAL SERVICE

American Accounting Association	2017 - Present
Tennessee Society of Certified Public Accountants	2009 - 2016
American Institute of Certified Public Accountants	2009 - 2016

COMMUNITY INVOLVEMENT

St. Jude Children's Research Hospital, Memphis Marathon Fundraiser	2018-Present
St. Jude Children's Research Hospital, Memphis Marathon St. Jude Hero	2020-Present
St. Jude Children's Research Hospital, Trike-A-Thon Co-Chair	2022 and 2023