Earnings management among NHS Foundation Trusts: A good beginning makes a good ending?

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Abstract

In April 2004, the first wave of hospitals in the English National Health Service (NHS) were given Foundation Trust (FT) status, which allowed them greater financial autonomy and freedom. A bit more than a decade later, FTs face unprecedented financial difficulties and huge deficits. This paper aims to explore whether NHS hospitals managed earnings upward prior to applying for FT status, thus presenting an overly positive picture of their financial position. We examine whether prospective FTs used discretionary accruals in order to improve their reported financial performance before achieving FT status, in comparison to trusts that never applied for this status. Our evidence indicates that NHS FTs adjusted discretionary accruals upward for up to two years before applying for FT status, while findings further support the hypothesis that this practice had a negative impact on their future financial performance. Overall, evidence shows that the benefits of FT status gave hospitals applying for the scheme a strong incentive to manage earnings. This was a much stronger incentive than the NHS Trusts' statutory obligation to break even. In light of the difficult financial situation that NHS FTs currently face, these findings could have significant implications for policy makers and the regulator.

1. Introduction

In 2004, the first wave of NHS hospitals in England received Foundation Trust (hereafter, FT) status. The new organizational scheme allowed providers a greater degree of financial freedom, less centralized control and more local governance. Unlike NHS Trusts, FTs do not have a statutory obligation to break even; they can retain surpluses and are free to employ new staff, invest in capital and borrow from the public or the private sector (Health and Social Care Act, 2003). Despite a number of concerns regarding the new initiative, including issues of governance (Klein, 2004; Allen, Keen, Wright, Dempster, Townsend, Hutchings, & Verzulli, 2012), the general perception is that hospitals that became FTs were financially very robust (Greener, 2004; Oliver, 2005; Audit Commission, 2008). This was enhanced by the strict financial criteria that hospitals had to fulfil before applying for FT status. Yet a bit more than a decade later, 118 out of 151 NHS FTs are in deficit, and future projections do not look optimistic (Monitor, 2015a). The reasons for the current financial situation of FTs are not simple or one-dimensional, but the huge deficits raise questions about the financial robustness of English hospitals prior to becoming FTs.

English NHS hospitals had incentives to present a better financial situation even prior to the establishment of FTs. There is evidence that the statutory requirement of hospitals to break even led to earnings management (hereafter, EM) among NHS hospitals even before 2004. Ballantine, Forker & Greenwood (2007), exploring the period between 1998-2004, show that NHS Trusts made use of discretionary accruals (hereafter, *DA*) in order to meet their statutory duty to break even, while the distribution of their reported income showed discontinuities around zero to avoid penalties for failure. However, despite a call to explore the impact of the financial incentives on the manipulation of FTs' financial performance (Greenwood, 2012), to date, there is no such empirical evidence.

Our aim in this paper is twofold. First, we explore whether NHS hospitals in England managed earnings upward prior to applying for FT status, thus presenting an overly positive picture of their financial position. In other words, we test whether the benefits of FT status provided stronger incentives for EM than the NHS Trusts' statutory obligation to break even provided. Second, given that EM mechanically reverses over the course of time (Ballantine et al., 2007), we explore whether managing earnings upward prior to becoming FTs is associated with the hospitals' future underperformance.

We test for earnings management through the use of *DA* by prospective FTs in comparison to Trusts that never attained FT status during 2002-2014. Our evidence indicates that prospective NHS FTs adjusted *DA* upward for up to two years prior to their application for FT status. This tendency is was stronger for prospective FTs than for Trusts that never converted to FT status. We determined this by using standard event-study methodology and by applying propensity score matching between FTs and NonFTs and contrasting relevant EM behavior. Our findings further support that this practice had a negative impact on the future financial performance of FTs in the year after they had converted to FT.

We find, however, no strong evidence that FTs engaged in earnings management after becoming FTs. In this way, our evidence indirectly provides an answer to a question raised by Greenwood (2012, p. 254) as to whether incentives for financial performance manipulation exist for FTs in the absence of the statutory break-even requirement. This finding, however, is also consistent with an inability to perpetually sustain accrual-based EM practices, due to mechanical reversal of accruals in subsequent time periods (Zang, 2012).

Our study builds on the growing literature on earnings management in the healthcare sector and offers a number of new policy insights. First, we show that prospective FTs engaged in income-increasing earnings management more intensely than did NHS Trusts that never attained this status. Hence, we provide evidence that the benefits enjoyed with FT status gave stronger incentives to engage in EM than did the statutory obligation of NHS Trust to break even. Second, we show that EM explains, at least in part, the future underperformance of NHS FTs, confirming an untested hypothesis made about the impact of earning management on future performance (Ballantine et al., 2007). Third, we find that the existence of EM dissipated after NHS Trusts had achieved FT status, and we provide, for the first time, evidence about the existence of earnings management among NHS FTs rather than among Trusts. This last point becomes especially important in light of the recent establishment of NHS Improvement, the regulatory body in charge of all NHS hospitals.

Our study takes an event-study approach applied, in this case, to the public sector, with respect to financial reporting behavior in anticipation of conversion to FT status by English NHS hospitals. The attainment of FT status has been seen as an opportunity reserved for the highest performing NHS Trusts, as conversion to FT status is accompanied by more operating and financing freedoms (Greener, 2004; Oliver, 2005), at least in expectations (Morrell, 2006). However, the effectiveness of the introduction of performance measurement systems in public sector organizations depends on both contractibility, as well as on how the system is being used by managers (Speklé and Verbeeten, 2014). According to Bevan & Hood (2006), managing public services, and the English NHS in specific, by setting targets to participants, should result in gaming depending on a mixture of motive and opportunity. While the assessed subjects may or may not share the goals set to them, some may honestly work towards their attainment, while others may game the target system upon having reasons and opportunity to act in this way. In this case, measured performance will appear to be the desired one, however, actions will deviate from the substantive goals behind these targets ('*hitting the target and missing the point'*, Bevan and Hood, 2006, p. 524). In our case, we consider EM undertaken with the scope of improving chances for converting to FT status as evidence of *'reactive gaming'* behavior (Bevan & Hood, 2006), this time, in relation to achieving a specific objective around an event, well and above attaining specific clinical or financial targets set to NHS Trusts.

Above all, our evidence indicates that incentives provided to public organizations significantly affect their behavior; leading to a marketization of the NHS at the level of actions (Osipovič, Allen, Shepherd, Coleman, Perkins, Williams, Sanderson, & Checkland, 2016), this is the case with non-public-sector companies operating in a fully competitive environment and calls for improved incentive design systems by regulators. A way to affront such a behavior would be to design financial performance measurement methods so that they are less vulnerable to gaming, through improved and more frequent monitoring of performance, and refraining from episodic monitoring (Bevan & Hood, 2006), as conversion to FT status may not have been accompanied by scrutiny to levels comparable to the ones applied before the event.

The rest of the paper is organized as follows: Section 2 presents a brief review of the literature on earnings management in healthcare; describes the establishment of FTs; and develops the study hypotheses. Section 3 presents the study methodology about EM estimation and other empirical issues, as well as the sample selection process. Section 4 reports our empirical findings, including robustness controls. Section 5 concludes the paper by further providing policy implications for our findings.

2. Literature Review And Hypotheses Development

2.1 Earnings Management

According to Healy & Wahlen's (1999) widely used definition, earnings management refers to organizations "*using judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.*" There exists abundant research on the motivations and existence of EM in the corporate (for-profit) sector over the last decades (Ronen & Yaari, 2008). In health care, there is significant international research indicating that hospitals often engage in EM in order to achieve financial reporting targets. In the US, Leone & Van Horn (2005) show the existence of discontinuities around zero in the distribution of reported income, while Eldenburg, Gunny, Hee & Soderstrom (2011) find evidence of the use of EM via real activities manipulation, consistent with evidence by Hsu and Qu (2012) on strategical management of operation costs and overhead allocation by US hospitals. This is in line with Vansant (2016) more recently, who provides evidence on strategic use of *DA* to achieve financial reporting targets in the US healthcare sector. In other settings, a number of studies indicate that changes in regulations have an impact on cost behavior for hospitals (Holzhacker, Krishnan, & Mahlendorf, 2015, in Germany) and show evidence that hospitals engage in income smoothing (Boterenbrood, 2014, in the Netherlands), in line with findings about changes in price transparency regulation affecting pricing in the US healthcare industry (Christensen, Floyd, & Maffett, 2016).

In the UK, a number of studies provide insights into the function of the NHS. As part of 'New Public Management' in the UK, changes have been implemented in the accounting regime, involving the implementation of private sector approaches to accounting and budgeting (Mellett, Marriott, &

Macniven, 2009). At this point, Ellwood (2009) identifies challenges when taking technologies designed for private goods traded in unregulated markets and trying to transplant them in public services. Confirming relevant evidence for the US, Ballantine et al. (2007) show the existence of discontinuities around zero in the distribution of reported income. They further provide evidence on the use of *DA* for achieving the statutory break-even required of NHS Trusts. The authors base their research on NHS Trusts during 1998-2004, and the motivation for their research question relies on the fact that hospitals are penalized for not meeting the break-even target (Ballantine et al., 2007, pp. 423–424). Furthermore, Ballantine, Forker & Greenwood (2008a) find that the use of abnormal accruals in order to achieve financial break-even differs across types of auditors and is also negatively associated with the star rating of the Trust, while Ballantine, Forker & Greenwood (2008b) examine the relationship between Chief Executive Officer (CEO) turnover and Trust performance. Other studies relate to auditing in the NHS (Basioudis and Ellwood, 2005; Clatworthy, Mellett, & Peel, 2000, 2002, 2008). Finally, additional research focuses on the use of accounting standards by NHS Trusts—such as GAAP modified by the Treasury, the Financial Reporting Advisory Board (FRAB) and the Department of Health (Ellwood, 2008) -or on the impact of the adoption of IFRS by NHS Trusts and FTs (Ellwood & Garcia-Lacalle, 2012).

2.2. Foundation Trusts Establishment

Foundation Trusts were introduced in 2002 as part of a wider range of NHS reforms aimed at increasing competition and enhancing patient choice (Department of Health, 2002). The two main changes that the new organizational regime introduced were greater financial freedom for FTs compared to NHS Trusts, and local, as opposed to centralized, governance (Health and Social Care Act, 2003). FTs still must meet national targets, such as short Accident and Emergency (A&E) waiting times, quick ambulance responses and timely General Practitioner (GP) referrals for cancer treatment, but they have a greater degree of autonomy in deciding how to achieve these targets. Unlike NHS Trusts, FTs do not have a statutory obligation to break even; they can borrow openly from private or public organizations (although within limits); and they can invest in capital. Managers of FTs welcome these freedoms, as they allow them better planning, more effective priority setting and faster decision making (Healthcare Commission, 2005; Lewis, 2005). A new regulatory body, called Monitor, was established to assess applications for FT status and oversee their performance.

The first wave of applications for FT status came in 2002. The applicants were the strongest performers, as only hospitals with three stars—the highest rating given for national performance—were allowed to apply (Greener, 2004; Oliver, 2005). The subsequent waves relaxed some of the application requirements to allow more hospitals to apply for FT status. For instance, in 2005, the third wave of applications allowed hospitals with a two- or three-star rating to apply (Monitor, 2005). Nevertheless, although the criteria for applicants changed over time, in all cases, the assessment was based on issues

of strong leadership, good governance and financial sustainability (Monitor, 2015a). By 2015, 151 Trusts had become FTs.

FTs came under scrutiny regarding their financial performance from the very beginning. Marini, Miraldo, Jacobs, & Goddard (2008) directly compare the financial performance of Trusts before and after converting to FT status. With the expectation that the best-performing hospitals eventually would become FTs, their evidence indicates that Foundation Status had limited impact on signalling strong financial management. They argue that, although these may be early results shaped by a challenging financial environment, the findings might be explained by the fact that FTs are not subject to the same pressure to improve deficits and meet targets for financial break-even (Marini et al., 2008).

Yet, in recent years, the financial situation of both FT and NHS Trusts has severely deteriorated, reaching unprecedented levels. A new body overseeing the performance of both NHS Trusts and NHS FTs, NHS Improvement, was established on April 1, 2016. In its first report, looking at the financial year ending May 31, 2016, NHS Improvement highlighted the sharp deterioration of the sector's financial performance. It reported a £2.45 billion year-end deficit, which was almost three times greater than that reported in the previous year and worse that what had been predicted (NHS Improvement, 2016). This adds to the growing concern that the deficit that NHS hospitals face is *"neither sustainable nor affordable"* (Monitor and NHS TDA, 2016). This is one of the worse deficit crises in the history of the NHS, and, although it can be attributed to, among other factors, rising staff costs, increasing demand and financial sanctions (NHS Improvement, 2016), it does raise concerns about how financially robust FTs actually were when they applied for FT status.

2.3 Hypotheses Development

Building on the above, there significant research indicating that hospitals in the UK, as well as in the US, engage in earnings management in order to achieve financial break-even and report marginally positive profitability, rather than actually achieving significantly positive profitability (Ballantine et al., 2007; Leone & Van Horn, 2005). This is because of the nature of the healthcare sector, in which hospitals' performance is evaluated in relation to their ability to meet non-financial objectives rather than shareholder value (Leone & Van Horn, 2005). This target, however, should be attained while securing an acceptable level of financial robustness and by not reporting losses. For this reason, hypotheses on EM by hospitals are based on an expectation of discontinuity in the distribution of reported income around zero, or of the use of discretionary accruals for achieving financial break-even or marginally positive income (Leone & Van Horn, 2005; Ballantine et al., 2007).

As discussed, beyond the 'status improvement' that FT conversion implies, hospitals are also expected to receive a series of financial freedoms, upon converting to this status. We, therefore, aim to examine, whether prospective FTs acted on incentives to report better financial performance in order to strengthen their applications for FT status conversion, by explicitly testing for EM in the years preceding their

petition for FT status. The existence of a decentralized health system offers greater scope, and incentives of using accounting strategically to achieve specific objectives (Cardinaels & Soderstrom, 2013; Gebreiter & Ferry, 2016), while the organizational context within which applications for FT status conversion were undertaken was inherently decentralized in nature. At the same time, Monitor judges applications for FT on the basis of financial health, as well as clinical excellence (Monitor, 2015a), while in support of their applications, NHS Trusts are asked to use the previous two years' historical data as inputs in producing projections for their financial model (Monitor, 2005). Nevertheless, even in the absence of such specific requirements, however, strong financial performance in the recent past supports better projections of future operating performance. The first wave of hospitals that applied for FT status were required to show that they had no deficits, and those in subsequent waves had to meet similarly strict financial requirements (Marini et al., 2008), leading to our first hypothesis:

Hypothesis 1: NHS Trusts applying for FT status engaged in upward reported income manipulation through the use of discretionary accruals more intensely, as compared to Trusts that never applied for FT status.

Accrual adjustments reflect accounting transactions affecting future cash flows, even though cash is not currently *"changing hands"* (Teoh, Welch, & Wong, 1998). Despite the fact that accrual accounting operates under the assumption that reported earnings should be invariant to the timing of cash receipts and payments, managerial flexibility involving income-increasing accrual adjustments will result in an increase in current reported earnings, while, as a result, future reported earnings will be lower (Teoh et al., 1998). In this way, a naturally expected characteristic of upward earnings manipulation through the use of discretionary accruals is that such a practice should mechanically reverse in the course of time, resulting in *"an apparently sudden, significant and unanticipated deterioration in financial performance"* (Ballantine et al., 2007).

Prospective NHS FTs, which, through detailed projections on future performances, had to demonstrate financial robustness when applying for FT status, soon found themselves in a pool of financial underperformers. Poor financial performance is currently a significant concern for both FTs and NHS Trusts and can be attributed to a wide set of factors that is beyond the scope of our study (Monitor, 2015a; Appleby, Thompson, & Jabbal, 2016). However, the contrasting picture between financially robust hospitals awarded FT status and huge deficits among these hospitals just a few years later raises questions about their true financial situation when they applied for the status. This leads us to examine whether potential upward earnings management before converting to FT status has negatively affected the future reported financial performance of FTs, leading to our second hypothesis:

Hypothesis 2: Potential EM undertaken by prospective Foundation Trusts in the years before converting to FT status will have a negative impact on their future operating performance.

3. Methodology

3.1 Measuring Discretionary Accruals

To test for the existence of earnings management among English hospitals before achieving FT status, we estimate and examine the properties and statistical significance of *DA*, with their calculation adapted for NHS Trusts, following Ballantine et al. (2007, 2008a) for the UK and a similar methodology employed by Leone & Van Horn (2005) for the US. *DA* are defined as the residuals from the following equation, estimated on a yearly basis among NHS Trusts,[1] based on the methodology introduced by Dechow & Dichev (2002), by incorporating the McNichols (2002) modification:

$$\Delta WC_{i,t}/TA_{i,t-1} = \alpha_0 + \alpha_1 CFO_{i,t-1}/TA_{i,t-1} + \alpha_2 CFO_{i,t}/TA_{i,t-1} + \alpha_3 CFO_{i,t+1}/TA_{i,t-1} + \alpha_4 \Delta Rev_{i,t}/TA_{i,t-1} + \alpha_5 PPE_{i,t}/TA_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

ΔWC represents the change in working capital accruals between years *t* and *t-1* (*Δ(Current Assets - CA) – Δ(Current Liabilities –CL)),* scaled by lagged Total Assets (*TA*). Change in current assets is calculated by making use of all relevant assets (not just non-cash current assets). As Ballantine et al. (2007) discuss, unlike conventional measures of working capital, this way of calculating change in working capital accruals includes cash balances (and also depreciation, consistent with Jones (1991), but unlike Dechow & Dichev (2002), in an effort to reflect the scope for cash transfers within local health economies, which may be recognized as revenue. Ballantine et al. (2007) further calculate a measure of working capital accruals when defining change in *CA* as the change in non-cash current assets. However, they characterize the calculation of working capital accruals by focusing on all current assets as "*NHS-specific,"* so we proceed with this calculation as our main model. We repeat our results when defining working capital accruals through the use of non-cash assets (*DA1*) in the form of robustness controls. Furthermore, in accordance with past research (Ballantine et al., 2007, 2008a), we add an additional NHS-specific feature by including long-term debtors in current assets, which is standard practice in NHS Trust financial statements.[2] Finally, *CFO* represents cash flows from operations for the year, and *PPE* is a Trust's net value of Property, Plant and Equipment (PP&E) for the year, while all variables are scaled by lagged *TA*, in accordance with Ballantine et al. (2007, 2008a).

The first fiscal year for which FTs reported financial results was 2005 (for the year ending on March 31, 2005). We make the simplified assumption that NHS Trusts submitted their applications for FT status in the year prior to the one in which this status was awarded, based on times indicated by Monitor for potential applicants, considering the assessment process and the transition period to become an FT

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[1] Ballantine et al. (2007, 2008a) estimate Equation (1) using panel data during their sample period. However, given the focus of our study on EM before achieving FT status, we estimate Equation (1) on a year-by-year basis, among all non-FTs for a particular year. We have estimated Equation (1) using panel data as a robustness control, and the coefficient values and significance obtained are remarkably similar to relevant ones reported by Ballantine et al. (2008a) (untabulated data).

[2] For a detailed discussion and description of the calculation of discretionary accruals for NHS Trusts given the particularities of this sector, see Ballantine et al. (2007, 2008a).

(Monitor, 2015a). Hence, when testing for the existence of earnings management for the one and two years before the application was submitted, we examine this question for the two and three years before FT status was attained. In this way, when we examine the performance of FTs three years before gaining FT status, the starting year for the sample period is 2002; when assessing the performance of FTs two years before the first Trusts became FTs, the starting year of the sample period is 2003. Finally, we use a comparison sample to FTs (NonFTs), consisting of Trusts that never became FTs during the sample period (2002-2014 for the minus-three-years and 2003-2014 for the minus-two-years analysis).[3] Regarding our comparison sample, we must acknowledge that multiple and, to some extent, confounding events took place in the NHS during 2002-2014. These events involved changes in funding and regulation, which could have affected the homogeneity of our NonFT sample over time. For example, as of the final quarter of 2006-2007, a financial support system called 'cash brokerage' for NHS trusts ceased to exist and was replaced by a formal system of loans clearly visible in NHS Trusts' accounts (Department of Health, 2007, p. 143). Nevertheless, the main source of difference when comparing FTs with NonFTs during our extended sample period is the existence (or not) of FT status, while the estimation of *DA* on a *year-by-year basis* (rather than using panel data, as done in relevant previous research (Ballantine et al., 2007)) represents such an effort. We address this further in the course of our robustness controls.

3.2 Sample Selection

Data were taken from the Laing and Buisson database of NHS Trust and Foundation Trust (FT) financial statements (separate files for the two groups), covering the period 1998-2014.[4] The dataset begins with 25 FTs in 2005 and ends with 147 FTs in 2014. It also reports information for 482 Trusts in 1998 and 102 Trusts in 2014, while Trust and FT names very often change across the years in the dataset. To ensure sample correctness and consistency, we performed a manual check and matching process of Trusts and FTs across the years for which data were available from Laing and Buisson. This further permitted us to track each FT across the years—that is, before becoming an FT, the date of switch to FT status, and after having achieved FT status. This process resulted in the safe identification of a total of 621 different Trusts and FTs together, out of which 147 were included in Laing and Buisson's 2014 FT data files, while 157 were included in FT files at some point in their history after 2005. Out of these 157 FTs, the hand-tracking process resulted in the identification of a total of 140 FTs that we could follow

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[3] In the way that the comparison sample is defined, there could exist cases of NonFTs that were in the process of becoming FTs towards the end of our sample period (i.e., last one or two years of the sample period) but did not become FTs until 2014. The existence of such cases is not expected to have a strong impact on the results due to the anticipated small number of such cases. At the same time, eventual EM by such Trusts would affect results, *contrary* to our hypotheses, as this would imply that such Trusts included in the comparison sample (rather than FTs) should be expected to engage in income-increasing EM.

[4] Financial years for NHS Trusts and FT involve two calendar years and extend between April 1 and March 31 of each year. So, in essence, financial data for fiscal year 2005 involve the time period between April 1, 2004 and March 31, 2005.

with certainty. Following this initial manual sample identification process, all subsequent calculations are data-dependent.[5]

To avoid confusion due to calculating operating results and surpluses/deficits under different definitions, the profitability performance measures used by this study are operating profit or operating income (surplus/deficit - before any financing - *OI*) and residual (or retained) profit or income (surplus/deficit - *RI*),[6] as provided by Laing and Buisson. Operating income is derived after subtracting operating expenses from operating revenue, while retained income represents the equivalent of bottom-line earnings for for-profit entities, with one additional feature unique to the NHS: retained income is derived after the subtraction of the so-called Public Dividend Capital (PDC) dividend charge for the year, representing a return of 3.5% of a Trust's net assets and reflecting the cost of capital utilized by the Trust (NHS manual for accounts, indicatively for 2013-2014 (My NHS body, 2014)). For this reason, retained income in the NHS is often mentioned as "residual income" in relevant research (Ballantine et al., 2007), indicative of this cost of capital charge, before the final profit figure is derived. Thus, the terms 'retained income' and 'residual income' will be used by this study interchangeably.[7]

The residual income figure obtained by Laing and Buisson involves its calculation after subtracting net asset impairment from the income statement, and not taking into account any prior-period adjustments or items leading to the calculation of total comprehensive income. This is because reports for NHS Trusts and FTs prepared by Monitor (which overviews FTs) or by the Trust Development Authority (TDA, which overviews NHS Trusts) define residual income somewhat differently (e.g., before or after impairment[8]). Furthermore, for reasons of break-even statutory duty assessment, impairments are added back into residual income for NHS Trusts.[9]

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[5] When an NHS Trust achieved FT status on April 1 of a particular year, this trust was included only in the FT files (and not the Trust files) for the particular year in Laing and Buisson's database. However, when an NHS Trust achieved FT status sometime during the fiscal year, Laing and Buisson includes the trust in question in both the Trust and FT data files (accounting for the time period spent as Trust vs. FT - with the exception of balance sheet data), consistent with the way such Trusts reported their performance themselves for that particular transition year. In such cases, data from the income statement (Statement of Comprehensive Income) and the Statement of Cash flows were aggregated from the two sets of files, while balance sheet (Statement of Financial Position) data were extracted from the FT files, given that such data reflect a, FT's status as of March 31 of a year, rather than from a full time period.

[6] The expressions *Retained Income* and *Residual Income* are used by this study interchangeably and refer to the same item.

[7] Residual income is referenced as 'retained income' (retained surplus or deficit) in the Laing and Buisson dataset.

[8] Common Monitor/TDA report: http://www.ntda.nhs.uk/wp-content/uploads/2015/09/Quarterly-report-on-the-performance-of-the-NHS-foundation-trusts-and-NHS-trusts-6-months-ended-30-September-20.pdf - accessed: 8/3/2016.

[9] Department of Health, NHS Finance Manual, January 2013, Paragraph 2.21: *'The impact of all impairments, including the one-off impact from any impairments resulting from the recognition of additional assets onto balance sheet due to IFRS accounting (including the recognition of PFI / LIFT assets), will not be taken into account when measuring NHS Trusts' financial performance, and includes performance against the breakeven duty.'* Note 43.1: *'Impairments charged in arriving at retained surplus/deficit for the year are added back before measuring breakeven performance.'*

The introduction of the International Financial Reporting Standards (IFRS) was a significant change during the period we examine. Financial statements were prepared under UK GAAP (adapted for NHS Trusts) before 2010 and, since then, have been prepared under IFRS. For 2009, Laing and Buisson provides IFRS restated data for FTs but not for NHS Trusts. Therefore, we use financial statement information for 2009 prepared under UK GAAP for both sets of Trusts. This combined use of UK GAAP and IFRS data inevitably further affects the calculation of discretionary accruals, for which we use intertemporal values for CFO around the IFRS transition year—that is, 2010 (current, lead, lagged CFO). However, due to the very nature of this particular item with a focus on cash, it is expected that the inevitable use of CFO values under UK GAAP combined with CFO values under IFRS should not have a significant qualitative impact on the results. At the same time, Laing and Buisson does not use a uniform set of data items (and corresponding names, in some cases) across the years, which implies the need for a manual check of data item consistency across years. Ellwood & Garcia-Lacalle (2012) compare UK GAAP and restated financial statements under IFRS and identify the main sources of differences between UK GAAP- and IFRS-prepared financial statements for the NHS. They observe lower aggregate surpluses for the year, higher aggregate values of fixed assets and higher aggregate debt levels under IFRS vs. UK GAAP, mainly due to the inclusion of PFI schemes in balance sheet; however, relevant values on the Trust level could vary. Given the inevitable simultaneous existence of IFRS- and UK GAAP-calculated financial results in our sample, we expect that the fact that they were applied in the same year for both Trusts and FT should alleviate any comparative biases. At the same time, we calculate our earnings management (discretionary accruals) measure on a year-by-year basis, while we repeat regression analyses using year dummies in the form of robustness controls.

An NHS-specific feature before the application of IFRS was the standard practice of including long-term debtors among current assets (Ballantine et al., 2007, 2008a). For comparison of UK GAAP (until 2009) and IFRS (from 2010 onwards) current assets, we have modified current assets for the years after the application of IFRS with the inclusion of long-term debtors among current assets (transfer from long-term assets), while robustness checks involve recalculating results when not performing this adjustment.

We should point out that there could exist additional differences in accounting treatments followed by NHS Trusts and FTs before the NHS adopted IFRS in 2010, such as those related to the application of FRS11 (accounting treatment for impairments) and FRS15 (accounting treatment for valuation and indexation of fixed assets) before IFRS adoption, as highlighted by Marini et al. (2008, p. 758). However, as they argue, the impact of these differences is not expected to be comparatively strong, while it should work towards underestimating possible surpluses.

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http://www.info.doh.gov.uk/doh/finman.nsf/4db79df91d978b6c00256728004f9d6b/b18a5eaadf26ab8d80256c44 0047bd80/$FILE/2012-13%20breakeven%20duty%20-%20detailed%20guidance.pdf - accessed: 8/3/2016

Finally, for 2005, there are no data on depreciation and staff costs for FT in the Laing and Buisson data files—data that we need for some of the performed analyses. Therefore, we made an approximation for these particular items by using the percentage of depreciation over tangible assets and the percentage of staff costs over total expenditures for 2006. We then multiplied these percentages with tangible assets and total expenditures for 2005 to derive an estimated figure for the 2005 depreciation and staff costs.

4. Empirical Findings

4.1 Descriptive Statistics

Table 1 reports the number of observations and (relevant %) of NHS Foundation Trusts with positive vs. negative operating performance results (surplus/deficit)—for Operating Income (*OI*) and Residual Income (*RI*) for three and two years before achieving Foundation Trust (FT) status, and one, two, and three years after having achieved FT status during 2002-2014. Where the number of observations for *OI* is different from that for *RI* for a particular time window, this difference reflects trusts that reported zero *RI*.[10] Table 1 additionally reports information about NHS Trusts that never attained FT status during 2002-2014, that is for the comparison sample (surplus vs. deficit for *OI* and *RI*).

Insert Table 1 about here.

Table 1 confirms the rapid deterioration of FTs immediately after they changed status. Extremely few FTs reported deficits in the three and two years before attaining FT status (0.76 and 2.17% for *OI* and 7.32 and 6.92% for *RI*, for three and two years prior to FT status year, respectively). However, relevant deficit percentages steadily exceed 10% for *OI* and are actually around or over 25% for *RI* over the one to three years after the Trust in question achieved FT status (12.32, 13.87, and 16.28 for *OI*, and 26.81, 23.82, and 24.81 for *RI*, for the next one, two and three years post-FT status). At the same time, percentages of Trusts that never became FT during 2002-2014 are around 20% for *OI* and 37.64% for *RI* during this time. Thus, it becomes obvious that, despite evidence for rather strong financial performance in the years before their status change, Trusts that attained FT status showed significantly deteriorating performance in the years immediately following their transition.

Table 2 further reports descriptive statistics for FTs (two years before achieving FT status[11]) in Panel A and for Trusts that never achieved FT status (NonFTs) in Panel B during 2003-2014, for items expressed in terms of amounts (in £000s) or ratios. In Panel A (reporting results for FTs), there are further reported results on statistical significance for a two-sample 2-tailed *t*-test on the equality of means (by assuming

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[10] Ballantine et al. (2007) do not report information on Trusts with a zero Retained Income result; however, this was the case in our Trust and FT sample for a few cases using data from Laing and Buisson.
[11] Descriptive statistics (untabulated for reasons of economy of space) reported in Table 2 are qualitatively similar if taken as of three years before achieving FT status (and, as a result, during 2002-2014 for the comparison sample). Results further remain qualitatively similar if an equal variance assumption is made for comparative *t*-tests between FTs and NonFTs.

that variances between the two samples are unequal), and a two-sample *Wilcoxon rank-sum (Mann-Whitney)* test for medians between FTs and Trusts that never became FTs.[12]

Insert Table 2 about here.

We observe from both Panels of Table 2 that amounts for *Current Assets (CA)*, with and without including long-term debtors in their composition, generally do not greatly diverge. At the same time, FTs are observed to be, on average, significantly smaller than NonFTs, in terms of amounts of *Cash, CA, Depreciation, Intangible assets, Property, Plant and Equipment (PP&E), Total Income, Income from core activities, Total expenditures, and, more importantly, Total assets.* Most of these results also appear similar in the case of medians, while *Cash flows from operations (CFO)* are significantly smaller for FTs when using medians, but not means, and there are no significant differences in *Total net assets* between the two groups. At the same time, however, *OI (Operating income-surplus/deficit), and RI (Residual income -surplus/deficit)* amounts are significantly *higher* for FTs than for NonFTs in terms of amounts, despite the smaller size of the former group (£4,819 and £771 for *OI* and *RI*, respectively, for FTs, vs. £1,693 and £-3,776 for *OI* and *RI* in the case of NonFTs, using mean values). Similarly, FTs experience significantly less negative change in working capital $\Delta WC/TA_{t-1,}$ on average (with and without LT debtors included among CA for WC calculation).

Following Table 1, FTs experience significantly higher operating and retained surpluses, whether or not scaling by lagged Total Assets (TA) or Staff costs is used. In particular, the average operating and retained surplus observed for FTs is 0.0385 and 0.0063, respectively (using scaling by lagged TA, following Ballantine et al., 2007), vs. 0.0164 and -0.0174 for the two operating measures for NonFTs, with evidence using medians being qualitatively similar.[13] Furthermore, FTs appear to be significantly less levered and more fixed, rather than intangible asset-intensive than Non FTs, judging from respective values for *Net assets/TA, PP&E/TA_{t-1},* and *Intangible assets/TA_{t-1}* (0.8549 vs. 0.7431, 0.9766 vs. 0.9165, 0.0038 vs. 0.0083, for FTs vs. NonFTs, for the three variables, respectively – using mean values, with observations for medians being qualitatively similar).[14] At the same time, FTs have significantly lower staff costs as a percentage of their total assets than NonFTs (*Staff costs/TA_{t-1},* of 0.9174 vs. 1.1059, for mean values), with higher CFO generation ability (*CFO/TA_{t-1}* of 0.0828 vs. 0.0715 for means). Finally,

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[12] The use of unequal variances in comparative *t*-tests is justified by the previous elaboration of variance equality tests for a significant number of variables, between FTs and NonFTs, indicating significant differences in respective variances (untabulated results).

[13] In accordance with past research (Ballantine et al., 2007), for comparability purposes, the main scaling variable employed by the study (with reference to *OI* and *RI*) is *TA,* while we use scaling by *Staff costs* among our robustness controls, as in their case. The selected scaling variable (lagged TA) affects all variables common in the methodological approach used by Ballantine et al. (2007) and our study (e.g. *PP&E/TA_{t-1}, CFO/TA_{t-1},*, used for discretionary accrual estimation), while we estimate our leverage proxy *Net assets/TA* using current year TA as a deflator. Furthermore, we confirm a problem raised by Ballantine et al. (2008a) about an error in Laing and Buisson data for current creditors for 2003, for which negative values are provided.

[14] Exceptionally high variables (over 0.9) for *PP&E/TA_{t-1}* are comparable to the ones obtained by prior research (Ballantine et al., 2007, Table 1).

we observe (using median, not mean, values) that FTs tend to experience larger increases in their income (total and core, $\Delta(Total\ Income)/TA_{t-1}$, and $\Delta(Core\ Income)/TA_{t-1}$,) and expenditures ($\Delta(Total\ Expenditure)/TA_{t-1}$).

4.2 Comparative Analysis Between FTs And NonFTs

The histograms in Figure 1, Panels A and B, present the distribution of reported Residual Income scaled by lagged Total Assets (Panel A) and Nondiscretionary Income (Panel B) for NHS Foundation Trusts two years before achieving FT status during the period 2003-2014. The interval width in the histograms is 0.005, following Leone et al. (2005), while frequency denotes the number of observations in a given interval. Nondiscretionary income (*NondiscrInc*) refers to residual income unaffected by discretionary accruals (residual income minus discretionary accruals (Leone and Van Horn, 2005), using lagged TA scaling), computed in accordance with past research (Ballantine et al., 2007; Leone and Van Horn, 2005).

Insert Figure 1 about here.

What we observe from Figure 1 for Trusts that eventually became FTs is that the distribution of their retained (or residual) income is centred on marginally positive values. A casual comparison of Panels A and B shows that the distribution for Nondiscretionary income is more dispersed and, by no means, as concentrated into the zero profit threshold. Past research has, indeed, shown that NHS Trusts engaged in EM in an effort to achieve the zero earnings benchmark (Ballantine et al., 2007), while histograms from Figure 1 confirm this behavior for bottom-line income of Trusts before becoming FTs. When estimating their profitability by excluding the discretionary component of accruals, profit does not exhibit the same small positive-profit trends, but is rather more balanced.

Next, we directly examine whether FTs engaged in income-increasing EM, in comparison to Trusts that never achieved FT status. Table 3, Panel A reports Pearson correlation coefficients between discretionary accruals (*DA*) and Nondiscretionary income (*NondiscrInc*) for NHS FTs before achieving FT status (for two and three years before achieving FT status) vs. Trusts that never achieved FT status (NonFTs). Table 3, Panel B reports one-sample results for *t*-tests for mean and *Wilcoxon signed rank* tests for median *DA* for FTs before achieving FT status. Finally, Table 3, Panel 3 reports results on comparative *t*-tests for means (under the assumption of unequal variances between the two samples) and two-sample *Wilcoxon rank-sum (Mann-Whitney)* tests for medians between FTs before achieving FT status and NonFTs. Data for the comparison (or NonFT) sample extend during 2002-2014 when the minus-three-year analysis is performed, and during 2003-2014 for minus-two- year analysis.

Insert Table 3 about here.

We first observe from Table 3, Panel A that correlation coefficients between *DA* and *NondiscrInc* are between -0.8 and -0.97 for FTs (depending on whether the analysis is conducted minus two or minus

three years before foundation status) and around -0.5 for the comparison sample. At the same time, performing a correlation coefficient comparison, the *Fisher r-to-z transformation - Z test*, indicates that these differences in the coefficients are strongly statistically significant at the 1% level. A strongly negative correlation between *DA* and *NondiscrInc* is consistent with reported income close to zero and nondiscretionary income equal or opposite to the value of discretionary accruals, which would be the expected behavior of accruals if a Trust aimed to achieve a financial break-even target (Ballantine et al., 2007). In this case, these findings indicate that this tendency is significantly stronger for FTs than for Trusts that never achieved foundation status, providing support for the hypothesis on income-increasing EM by FTs before achieving foundation status.

We then observe from Panel B of Table 3 that after performing one-sample tests, mean (two-tailed, where ($Pr(|T|>|t|)$, and one-tailed, where $Pr(T>t)$, testing for the significance of positive *DA*) and median *DA* in the previous two and three years before achieving FT status, or one and two years before the expected year of applying for FT status, are strongly statistically significant in every case, at either the 5% or 1% level. This result indicates a significant tendency among prospective FTs to engage in upward EM in the years before achieving FT status. More importantly, Panel C of Table 3 reports results on the significance of differences in mean (two-tailed ($Pr(|T|>|t|)$ and one-tailed ($Pr(T < t)$ testing for whether *DA* by FTs are significantly larger than *DA* for NonFTs) and median *DA* between prospective FTs. The comparison indicates that mean *DA* for prospective FTs for three and two years before achieving FT status are significantly higher, compared to those observed for Trusts that never achieved FT status. The results for means are confirmed with the use of medians, for three (but not two) years before achieving FT status. In this way, results from Table 3, Panels A, B, and C, overall, indicate that NHS Trusts that eventually became FTs engaged in significantly stronger income-increasing EM than Trusts that never applied for FT status.

Results from Table 4 compare prospective FTs to the universe of Trusts that did not achieve FT status during the sample period. We extend the event-study analysis reported in Table 3 by performing additional matching techniques between FTs and NonFTs, which involve limiting the comparison to a particular year. In particular, we perform propensity score matching by employing a one-to-one nearest neighbor matching with a replacement matching procedure, restricting attention to propensity scores that support both groups of firms (Michaely & Roberts, 2012). For the propensity score matching estimation, we first estimate a probit model regression in which the dependent variable takes the value of 1 if the firm is an NHS Trust that achieved foundation status in the following two or three years, and zero for trusts that never achieved foundation status (NonFTs - control sample). We include independent variables for firm size (*LnTA*) and human resource cost intensity (*Staff costs/TA$_{t-1}$*) in an effort to compare trusts with similar operating characteristics that are not, however, performance-related. Including performance-related variables could create causality concerns, given that income-increasing

EM is undertaken to improve reported performance.[15] Monitor has reported that the cost of the workforce—particularly of agency staff that are called to fill vacancies and maintain safe staffing levels—remains one of the main drivers of the financial deterioration of FTs (Monitor, 2015a). Using the predicted probabilities (propensity scores) from this regression, matches are then forced between FTs and NonFTs within the same year, thus permitting us to explicitly control for year factors. Thus, using the predicted propensity scores, each FT-year observation is matched to the corresponding NonFT-year observation, which minimizes the absolute value of the difference between the propensity scores (Michaely and Roberts, 2012).

Table 4 reports results for the propensity score matching performed between NHS Foundation Trusts (FT) two and three years before achieving FT status, and Trusts that never achieved FT status. The first reported results are for probit model estimation or the first step of the propensity score matching procedure, followed by results on the comparison of discretionary accruals (*DA*) between matched FTs and Non-FTs. There are reported mean values for *DA*, the percentage reduction in bias after performing the propensity score matching procedure, and values of *t-statistics* when performing a comparison between mean *DA* for the two matched firm groups.

Insert Table 4 about here.

The probability of becoming an FT significantly decreases with firm size, as well as with staff cost intensity; in other words, NHS Trusts that eventually became FTs tended to be smaller Trusts and Trusts with lower staff costs as a percentage of their assets. More importantly, we observe that *DA* for Trusts that eventually became FTs are significantly higher than for Trusts that never became FTs. This result is significant for the minus-two (at the 10% level) and even more strongly for the minus-three-year period with reference to the year of the status transition (or minus one and two years with reference to the expected year of FT status application). Due to these results, the findings from Table 4 reinforce the findings from Table 3, jointly indicating that prospective FTs engaged in income-increasing EM to a greater extent than did Trusts that never achieved FT status.[16]

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[15] Marini et al. (2008, p. 755) also avoid performing matching by financial management measures, as this is the outcome variable in their study.

[16] It should be noted here that replicating the analysis of Tables 1 and 3 by making sole use of the FTs and NonFTs, which resulted from the propensity score matching procedure, yields results that are qualitatively similar to the ones reported for the natural sample. More specifically, the percentage of NonFTs reporting an operating and retained income deficit during 2002-2014 are directly comparable to the ones reported for the natural sample in Table 1, with the relevant percentage at approximately 20 and 35%, respectively. We believe that this result provides reassurance about the validity of comparisons with a NonFT sample covering a time period longer than ten years. Nevertheless, we chose to report results for the natural, rather than for the artificial, sample constructed via propensity score matching in an effort to provide indications about the actual financial picture of the health sector. Finally, to account for the possibility that Trusts that applied for FT status in earlier waves of the scheme may differ from those that applied later (see Section 2.2 above), we isolated the analysis to specific years during the sample period—e.g., before vs. after 2007. Our main results (Table 4) are robust to this analysis (untabulated results).

Finally, we estimate a so-called zero profit regression, as introduced by Leone & Van Horn (2005). In their study, they regress DAs on Nondiscretionary income, controlling for lagged profitability and lagged DAs. The prediction of this estimation favors an inverse contemporaneous relation between *DA* and *NondiscrInc*, in cases in which healthcare organizations struggle to move profitability to zero (Leone & Van Horn, 2005). Past research shows that NHS Trusts already had a tendency to work towards achieving the zero earnings benchmark (Ballantine et al., 2007), while the prediction made by this study is that prospective FTs engaged in upwards EM more aggressively than NonFTs, In this respect, the estimation of a zero earnings benchmark regression, such as the one employed by Leone & Van Horn (2005), is expected to provide insights about which Trusts—FTs or NonFTs—were more aggressive in pursuing non-negative profitability.

Thus, based on Leone & Van Horn (2005), we estimate the following equation using OLS and heteroscedasticity robust standard errors for NHS FTs before achieving FT status (for two and three years before achieving FT status) and Trusts that never achieved FT status (NonFTs - comparison sample):

$$DA_{i,t} = \alpha_0 + \alpha_1 NondiscrInc_{i,t} + \alpha_2\, RI_{i,t-1} + \alpha_3 DA_{i,t-1} + \varepsilon_{i,t} \qquad (2)$$

The dependent variable *DA* refers to estimated discretionary accruals. Independent variables include Nondiscretionary income (*NondiscrInc*), lagged Residual Income *(RI_{t-1} – scaled by lagged TA)* and lagged *DA*. If Trusts managed earnings towards the zero earnings benchmark, α_1 is expected to be negative and significant, while the predicted sign for α_2 is positive, and no prediction is made for α_3 (Leone & Van Horn, 2005). Table 5 reports the estimation results for Equation (2). There are further reported Variance Inflation Factors (VIF) for the variable of interest *NondiscrInc*, as well as results for coefficient comparison tests between FTs and Non FTs for *NondiscrInc*.[17]

Insert Table 5 about here.

From results reported in Table 5, we first observe that, when estimating Equation (2) for either the FT or NonFT sample, the signs and significance for all regressors generally conform to expectations and are consistent with Leone et al. (2005). This refers to the negative and significant sign for *NondiscrInc* and the positive sign for lagged *RI*. However, it is readily observed that the coefficient magnitude and the value of the relevant *t*-statistic (in absolute terms) for *NondiscrInc,* either two or three years before achieving FT status, are higher for the FT sample than for the NonFT sample (e.g., -0.0132 vs. -0.3457 for the *NondiscrInc* regressor for FTs vs. NonFTs, for minus two years before achieving FT status for

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[17] Coefficient comparison tests are based on previous regression estimations without the use of heteroskedasticity robust standard errors, due to estimation restrictions in any other case. Despite the fact that results reported for Equation (2) in Table 5 have been estimated with the use of robust errors, results remain qualitatively similar without the use of robust errors. Finally, Equation (2) has been estimated with the use of year dummy variables (untabulated results) with estimation results remaining qualitatively similar.

the former group and during 2003-2014 for the latter), while *VIFs* get low values for this variable. More importantly, judging from the values and significance of the coefficient comparison test statistic X^2, coefficients for *NondiscrInc* significantly differ between the two groups, at either the 5% (for minus two years) or the 1% (for minus three years) significance level. We interpret this result as indicating that prospective FTs were more eager to attain the zero earnings benchmark, compared to Trusts that never applied for FT status. This result also complements the results from previous tables on comparatively higher upward EM for FTs vs NonFTs.

4.3 The Impact of Eventual EM Before Achieving FT Status on Future Operating Performance

Earnings management through the use of discretionary accruals will eventually be mechanically reversed, resulting in a sudden and unanticipated future drop in performance (Ballantine et al., 2007). Therefore, we empirically test whether EM undertaken by prospective FTs in the years before achieving FT status is significantly and negatively associated with operating performance post-FT status. Specifically, we examine whether EM undertaken two years before becoming FTs is associated with the probability of reporting a surplus rather than a deficit; we also look at the level of eventual surpluses/deficits. In this way, we estimate the following equation for NHS Trusts that subsequently achieved FT status during 2003-2014:

$$\{Pr[Oper.Surplus_{i,t+3} = 1], Pr[Ret.Surplus_{i,t+3} = 1], OI_{i,t+3}, RI_{i,t+3}\} = \alpha_0 + \alpha_1 DA_{i,t} +$$

$$\alpha_2 OI_{i,t+2} + \alpha_3 LnTA_{i,t} + \alpha_4 \Delta(Core\ Income)_{i,t} + \alpha_5 \Delta(Total\ Expenditure)_{i,t} + \alpha_6 Leverage_{i,t} +$$

$$\alpha_7 \Delta WC_{i,t} + \alpha_8 Staff\ Costs_{i,t} + \alpha_9 Intangible\ Assets_{i,t} + \varepsilon_{i,t} \quad (3)$$

Estimation results for Equation (3) are reported in Table 6. The dependent variable is either a binary variable equal to one if Residual Income (*RI*) or Operating Income (*OI*) is positive one year after the Trust achieved foundation status, and zero otherwise (Panel A); or the level of *RI* or *OI* (scaled by lagged *TA*) one year after the Trust in question achieved foundation status (Panel B). When the dependent variable is in binary form, the Equation is estimated as a probit model, and when this variable is continuous, Equation (3) is estimated using OLS, with heteroskedasticity robust standard errors in every case. Independent variables include discretionary accruals (*DA*); operating income as of the year the FT achieved foundation status (scaled by lagged *TA* - OI_{t+2}); firm size in terms of Total Assets (*LnTA*); change in core income and total expenditures (scaled by lagged *TA* - *Δ(Core Income)* and *Δ(Total Expenditure)* respectively); financial leverage (expressed in the form of *Net assets/TA*); change in working capital (scaled by lagged TA - *ΔWC*); staff costs; and intangible asset intensity (scaled by lagged *TA* - *Staff costs* and *Intangible assets,* respectively). With the exception of OI_{t+2}, all other independent variables are taken as of two years before the Trust achieved FT status. There are further reported Variance Inflation Factors (VIF) for *DA* as the variable of interest.

We use controls for Trust size, past profitability (taken immediately before the year in which performance is assessed, under the expectation of recent performance being associated with imminent future performance), and changes in income and expenditures, which could be at the root of eventual surpluses or deficits. At the same time, we impose controls for financial leverage, staff costs and intangibles' intensity. High levels of debt could indicate strong investment opportunities or poor operating performance, while human resource and intangibles' intensity should be expected to capture eventual value creation from investing in such resources. Finally, we use the change in working capital as a regressor, in an effort to control for an eventual mechanical effect of such changes into the measurement of accruals.

Insert Table 6 about were.

Table 6, Panel A shows that DA are negatively and significantly associated with the probability of reporting an operating surplus one year post-FT status, and this is holds for both *RI* surplus (at the 5% significance level) and *OI* surplus (at the 10% significance level). Panel B of the same Table further indicates that DA are negatively and significantly (at the 10% level) associated with the magnitude of *RI* surplus but are not statistically significant when expressing surplus in terms of *OI*. In other words, lower levels of EM two years before achieving FT status are associated with a higher probability of reporting a surplus one year post-FT status, and also with the magnitude of such a surplus, and vice versa. The results indicate that eventual EM undertaken by prospective FTs before achieving FT status shows reversal signs in terms of a negative effect on future operating performance. This significantly explains, at least in part, future operating performance post-FT status or eventual deficits vs. surpluses reported by FTs after receiving foundation status.

With respect to the behavior of the rest of regressors, we observe that the probability of reporting a surplus and the magnitude of the surplus positively relate to previous financial performance, positive changes to revenues, decreased expenses, and increases in working capital, as one would intuitively expect. However, these results are not statistically significant in every case shown in Panels A and B of Table 6, while we get a weak indication of a negative association between Trust size and the probability of generating an operating profit surplus.

As a final check, we examine whether hospitals that eventually became FTs engaged in EM, at least on average, in the years following their achievement of FT status. We do so because, on the one hand, the very fact that EM through the manipulation of accruals is subject to reversal in subsequent periods is a mechanical manner and, thus, cannot be sustained continuously. On the other hand, FTs are not subject to the same yearly break-even obligation that NonFTs must meet,[18] although Monitor does appraise FTs'

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[18] Monitor, NHS Foundation Trusts: consolidated accounts 2014/2015, p. 7, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447099/50702_HC_238_WEB.pdf, accessed: 15/3/2016.

financial performance. Until August 2015, all FTs were given a Continuity of Services Risk Rating (COSRR) that assessed them for governance and financial risk. Given the unprecedented financial challenges that FTs currently face, a new metric replaced COSRR in August 2015. It includes an income and expenditure (I&E) margin and is used to determine the Risk Assessment Framework (RAF) that Monitor uses. The RAF indicates whether FTs at high risk should undergo inspection and, in more serious cases, whether enforcement action should be taken (Monitor, 2015a). One might further argue that FTs may still have motives to engage in upward EM, for example, in order to secure funding at more favorable terms once they have achieved FT status, given that FTs have more flexibility to do so. Our aim is, therefore, to examine whether a combination of factors creates an environment for upward *DA* manipulation to take place post-FT status attainment.

We report in Table 7 the mean and median values for *DA* for NHS FTs for one, two, and three years after the trust achieved FT status. The table further reports results for one-sample *t-tests* for mean and *Wilcoxon signed rank* tests for median *DA* for FTs after having achieved FT status. Tests for mean *DA* are both *2-tailed* and *1-tailed*, testing for the significance of positive *DA* in the last case. In contrast to the *DA* calculation for pre-FT status analyses reported in previous tables—for which Equation (1) was estimated only among NonFTs (to then isolate *DA* by prospective FTs included among NonFTs for a particular year)—we calculate *DA* here using data from all Trusts (FTs and NonFTs) for the year in question. We do so because the scope of the post-FT status EM analysis is to isolate *DA* for FTs and to test for the existence of EM for these particular Trusts after FT status has been attained.

Insert Table 7 about here.

Using means, we get very weak indications about the existence of significant *DA* over the one to three years post-FT status, as there is evidence on significant *DA* only for the plus-two-year window, and only when performing a one-sided test for accruals. In the case of median values for *DA*, the results are stronger, as there is evidence of positive and significant *DA* (and, thus, upward EM) for the one (at the 1% significance level) and two (at the 5% significance level) years post-FT status, but not for the third year. Overall, results point towards a limited level of significance of upward EM by FTs in the years post-FT status, though the evidence is stronger for the first year and especially for the first two years after transition. At the same time, there exist contradictions in the results when using means vs. medians, implying that the results do not signify a particular trend, as was the case with the relevant results on EM before FT status conversion. This evidence is consistent with a possible inability to engage in EM, as abilities for upward management of accruals are not endless in nature (Zang, 2012); the evidence also is compatible with a decreased motivation to engage in such activities due to a less strict regulation imposing financial break-even, as compared to the statutory duty applicable to NHS Trusts.

4.4 Robustness Controls

Table 8 reports a series of robustness controls that we used to check the validity of our findings. Panel A reports results for Equation (2) on the zero profit hypothesis, estimated separately for prospective FTs recorded in the Laing and Buisson database as having Private Investment Initiative contracts (PFIs), for two and three years before achieving FT status, for the variable of interest *NondiscrInc*. The robustness control regarding whether the existence of PFIs has a qualitative impact on the results follows from Ballantine et al. (2008a). This control refers mainly to the pre-IFRS adoption years, as one of the main changes to the NHS introduced by IFRS adoption had to do with stopping the treatment of PFIs as operating leases and including relevant fixed assets and corresponding debt associated with the project in the statement of financial position (Ellwood & Garcia-Lacalle, 2012).

Table 8, Panels B, C, and D, report indicative results for an alternative discretionary accrual measure, *DA1*, estimated as described in Section 3.1. Panel B reports results for *DA1* for Equation (2) on the zero profit hypothesis for FTs before achieving FT status (for two and three years before achieving FT status) and Trusts that never achieved FT status (NonFTs - Comparison sample, for the variable of interest *NondiscrInc*); and results for coefficient comparison tests between FTs and Non FTs for the *NondiscrInc* regressor. Panel C reports results when using *DA1* for Equation (3), which examines the impact of prospective FTs' potential EM on their subsequent operating performance (again, for the main variable of interest, *DA1)* with two different dependent variables: 1) when the dependent variable is either a binary variable equal to one if Residual Income (*RI*) or Operating Income (*OI*) is positive one year after the Trust achieved foundation status, and zero otherwise; and 2) and when the dependent variable is the level of *RI* or *OI* (scaled by lagged *TA*) one year after the Trust achieved foundation status. Finally, Table 8, Panel D reports mean and median values for discretionary accruals under the *DA1* definition for FTs for the next one, two, and three years after the trust achieved FT status; and results for one-sample *t-tests* for mean (two- and one-tailed, testing for the significance of positive *DA* in the last case) and *Wilcoxon signed rank* tests for median *DA1* for FTs after achieving FT status.

Insert Table 8 about here.

We observe from Table 8, Panels A and B, that results on Equation (2) are qualitatively similar for prospective FTs with PFIs, and also when using *DA1* as an EM metric, compared to results reported in Table 5. In the case of Panel B, coefficient comparison tests further indicate significant differences in the *NondiscrInc* coefficient value between FTs and NonFTs. Thus, limiting the analysis to half of our sample (only prospective FTs with PFIs) yields results that are qualitatively similar to those reported in Table 5, and so does repeating the analysis using an alternative measure for discretionary accruals. Findings from Table 8, Panel C indicate that the use of *DA1* produces results in the same direction (and even stronger, in terms of statistical power) as those reported in Table 6, regarding a negative and significant effect of EM undertaken before achieving FT status on operating performance after the

transition year. Finally, results from Table 8, Panel D point towards no significant evidence on EM by FTs in the years after attaining FT status, in accordance with the relevant findings in Table 7.

5. Conclusion

Our paper explores the proposition that the introduction of FT status in the NHS in England provided strong incentives to hospitals to manage earnings upward prior to applying for FT status. In the context of past research observing that English NHS hospitals engaged in upward reported income manipulation in order to satisfy their statutory requirement to break even (Ballantine et al., 2007), we examine whether the motivation of NHS hospitals to achieve FT status provided them with additional incentives to engage in such practices in order to strengthen their case in applying for FT status. The main incentive would have been that NHS FTs, in comparison to NHS Trusts, enjoy significant financial freedoms that allow them to have more autonomy in decision making and to operate under less-centralized control (Health and Social Care Act, 2003). At the same time, the existence of EM through income-increasing discretionary accruals is expected to mechanically reverse after some time (Ballantine et al., 2007), creating concerns about the long-term financial prospects of such practices.

We find strong evidence that, indeed, the benefits of FT status significantly led hospitals to engage in upward discretionary accrual manipulation prior to applying for the status, in order to present a healthier picture of their finances. As indicated by the previous literature (Ballantine et al., 2007), this management of earnings was significantly associated with deficits shortly after the hospitals became FTs. However, we find little evidence that hospitals engaged in EM after they became FTs. This latter finding may indicate the inability of organizations to continue managing earnings over the longer term (Zang, 2012) or merely the lack of incentives to do so after becoming FTs.

In our study, we take an event-study approach, applied to the public, rather than the private, sector, with respect to financial reporting behavior in anticipation of conversion to FT status in the English NHS. Our evidence suggests that performance assessment may be done according to appropriate standards, yet it may miss the substantive goals behind the set targets (Bevan and Hood, 2006), in relation to the event of FT status conversion. We interpret our evidence on EM prior to applying for FT status as an indication of '*reactive gaming*' behavior (Bevan & Hood, 2006), in relation to achieving a specific objective around an event.

Our study, therefore, contributes to the international literature on EM in the healthcare sector (Ballantine et al., 2007, 2008a; Ellwood, 2008) and, more generally, to the growing literature on accounting and health care (Gebreiter & Ferry, 2016). Yet our findings also have significant policy implications. With a huge deficit and 37 Trusts under investigation due to operational or financial concerns (Monitor, 2015a), the future of FTs in England does not look positive. In this respect, our evidence indicates that incentives that the state provides to public organizations can have a significant effect on their behavior—

much like the private sector, in which firms operate in a competitive environment. Prospective NHS FTs were asked to use historical data for the past two years as inputs in determining projections for the financial model produced as part of their application for FT status (Monitor, 2005). Naturally, positive projections of future operating performance are bolstered by strong financial performance in the recent past, even outside of such a strict framework. Our evidence is consistent with the fact that this way of projecting future performance significantly induces prospective FTs to engage in earnings management, thus calling for improved incentive design by regulators. Such systems could, for example, ask for a longer time series of data to be used as inputs for relevant model production. This could prevent the structuring of the Trusts' reporting behavior around a specific incentive, or it could bring about the imposition of strict requirements for reporting financial performance on a continuous basis. The new Risk Assessment Framework, implemented in August 2015 (Monitor, 2015b) might represent an effort in this respect; however, its success, in terms of both design and implementation, should be assessed by incorporating evidence on the past financial reporting behavior of NHS FTs. Our finding that FTs and NHS Trusts seem to respond differently under different incentives also has implications for NHS Improvement, the new regulatory body that oversees both types of hospitals and takes over for Monitor. Nevertheless, further research is needed to explore the role and perceptions of hospital CEOs and to analyze how their personal career concerns may interfere with accounting performance measures.

References

Allen, P., Keen, J., Wright, J., Dempster, P., Townsend, J., Hutchings, A., & Verzulli, R. (2012). Investigating the governance of autonomous public hospitals in England: Multi-site case study of NHS foundation trusts. *Journal of Health Services Research & Policy*, *17*(2), 94–100.

Appleby, J., Thompson, J., & Jabbal, J. (2016). *Quarterly Monitoring Report 18.* London: The King's Fund.

Audit Commission. (2008). *Is the treatment working? Progress with NHS system reform programme.* London: Audit Commission.

Ballantine, J., Forker, J., & Greenwood, M. (2007). Earnings management in English NHS hospital trusts. *Financial Accountability & Management*, *23*(4), 421–440.

Ballantine, J., Forker, J., & Greenwood, M. (2008a). Public and private sector auditors and accruals quality in English NHS hospital Trusts. *The British Accounting Review*, *40*(1), 28–47.

Ballantine, J., Forker, J., & Greenwood, M. (2008b). The governance of CEO incentives in English NHS hospital trusts. *Financial Accountability & Management*, *24*(4), 385–410.

Basioudis, I. G., & Ellwood, S. (2005). External audit in the National Health Service in England and Wales: A study of an oversight body's control of auditor remuneration. *Journal of Accounting and Public Policy*, *24*(3), 207–241.

Bevan, G., & Hood, C., (2006). What's measured is what matters: Targets and gaming in the English public health care system. *Public Administration*, *84*(3), 517–538

Boterenbrood, R. (2014). Income smoothing by Dutch hospitals. *Journal of Accounting and Public Policy*, *33*(5), 510–524.

Cardinaels, E., & Soderstrom, N. (2013). Managing in a complex world: Accounting and governance choices in hospitals. *European Accounting Review*, 22(4), 647–684.

Christensen, H. B., Floyd, E., & Maffett, M. G. (2016). *The Effects of Charge-Price Transparency Regulation on Prices in the Healthcare Industry* (SSRN Scholarly Paper No. ID 2343367). Rochester, NY: Social Science Research Network. Retrieved from https://papers.ssrn.com/abstract=2343367

Clatworthy, M., Mellett, H., & Peel, M. (2000). Developments: External audit fee levels in NHS trusts. *Public Money and Management*, *20*(1), 63–68.

Clatworthy, M. A., Mellett, H. J., & Peel, M. J. (2002). The market for external audit services in the public sector: An empirical analysis of NHS trusts. *Journal of Business Finance & Accounting*, *29*(9–10), 1399–1439.

Clatworthy, M. A., Mellett, H. J., & Peel, M. J. (2008). Changes in NHS Trust audit and non-audit fees. *Public Money and Management*, *28*(4), 199–205.

Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, *77*(Supplement), 35–59.

Department of Health. (2002). *A guide to NHS Foundation Trusts.* London: Department of Health.

Department of Health. (2007). *Departmental Report 2007, The Health and Personal Social Services Programmes*. London: Department of Health. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/243293/7093.pdf

Eldenburg, L. G., Gunny, K. A., Hee, K. W., & Soderstrom, N. (2011). Earnings management using real activities: Evidence from nonprofit hospitals. *The Accounting Review*, *86*(5), 1605–1630.

Ellwood, S. (2008). Accounting for public hospitals: A case study of modified GAAP. *Abacus*, *44*(4), 399–422.

Ellwood, S. (2009). Accounting for (a) public good: Public healthcare in England. *Financial Accountability & Management*, *25*(4), 411–433.

Ellwood, S., & Garcia-Lacalle, J. (2012). Old wine in new bottles: IFRS adoption in NHS foundation trusts. *Public Money & Management*, *32*(5), 335–342.

Gebreiter, F., & Ferry, L. (2016). Accounting and the "insoluble" problem of health-care costs. *European Accounting Review*, *25*(4), 719–733.

Greener, I., (2004). Health service organization in the UK: A political economy approach. *Public Administration*, 82*(3)*, 657–676.

Greenwood, M. (2012). *Financial Accountability and Managerial Incentives in English NHS Hospital Trusts 2003-2008*. PhD Thesis, University of Bath. Retrieved from http://opus.bath.ac.uk/31924/

Health and Social Care Act. (2003). *The Health and Social Care (Community Health and Standards) Act.* London. Retrieved from http://www.legislation.gov.uk/ukpga/2003/43/contents

Healthcare Commission. (2005). *Healthcare Commission's Report on the review of NHS Foundation Trusts.* London: Healthcare Commission.

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, *13*(4), 365–383.

Hsu, S., & Qu, S. (2012). Strategic cost management and institutional change in hospitals. *European Accounting Review*, 21(3), 499–531.

Klein, R. (2004). The first wave of NHS foundation trusts. *British Medical Journal*, *328*(7452), 1332–1332.

Leone, A. J., & Van Horn, R. L. (2005). How do nonprofit hospitals manage earnings? *Journal of Health Economics*, *24*(4), 815–837.

Lewis, R. Q. (2005). NHS foundation trusts. *British Medical Journal*, *331*(7508), 59–60.

Marini, G., Miraldo, M., Jacobs, R., & Goddard, M. (2008). Giving greater financial independence to hospitals—does it make a difference? The case of English NHS trusts. *Health Economics*, *17*(6), 751–775.

McNichols, M., (2002). Discussion of the quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review, 77* (Supplement), 61–69.

Mellett, H., Marriott, N., & Macniven, L.(2009). Diffusion of an accounting innovation: Fixed asset accounting in the NHS in Wales. *European Accounting Review*, 18(4), 745-764.

Michaely, R., & Roberts, M. R. (2012). Corporate dividend policies: Lessons from private firms. *Review of Financial Studies*, *25*(3), 711–746.

Monitor. (2005). *Applying for NHS Foundation Trust Status – Guide for Wave 3 Applicants.* London: Department of Health.

Monitor. (2015a). *Performance of foundation trust sector - 3 months ended 30 June 2015*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/466705/To_pub lish_-_Performance_of_the_NHS_Foundation_Trust_Sector-_3_monts_ended_30_June_-_report.pdf

Monitor. (2015b). *Risk Assessment Framework – Updated August 2015.* London. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/455893/RAF_r evised_25_August.pdf

Monitor and NHS TDA. (2016). *NHS Providers: quarterly performance report (quarter 3, 2015/16)*. Retrieved from https://www.gov.uk/government/publications/nhs-providers-quarterly-performance-report-quarter-3-201516

Morrell, K., (2006). Policy as narrative: New Labour's reform of the National Health Service. *Public Administration*, 84*(2)*, 367–385.

My NHS body. (2014). *Manual for Accounts 2013-14. Chapter 5 - NHS pro-forma accounts*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/226406/FRAB_ _117__09_NHS_Manual_for_Accounts_2013-14_-_MFA_Chap_5_Accounts_format.pdf

NHS Improvement. (2016). *Performance of the NHS provider sector: year ended 31st March 2016.* Retrieved from https://improvement.nhs.uk/uploads/documents/BM1653_Q4_sector_performance_report.pdf

Oliver, A., (2005). The English National Health Service: 1979-2005. *Health Economics*, 14(*S1*), S75–S99.

Osipovič, D., Allen, P., Shepherd, E., Coleman, A., Perkins, N., Williams, L., Sanderson, M., & Checkland, K., (2016). Interrogating institutional change: Actors' attitudes to competition and cooperation in commissioning health services in England. *Public Administration*, 94*(3)*, 823–838.

Ronen, J., & Yaari, V. (2008). *Earnings management: Merging insights in theory, practice and research. New York: Springer Series in Accounting Scholarship/Springer.*

Speklé, R.F., & Verbeeten, F.H.M., (2014). The use of performance measurement systems in the public sector: Effects on performance. *Management Accounting Research*, 25*(2)*, 131–146.

Teoh, S. H., Welch, I., & Wong, T. J. (1998). Earnings management and the underperformance of seasoned equity offerings. *Journal of Financial Economics*, *50*(1), 63–99.

Vansant, B. (2016). Institutional pressures to provide social benefits and the earnings management behavior of nonprofits: Evidence from the US hospital industry. *Contemporary Accounting Research*, 33*(4)*, 1576-1600.

Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review*, *87*(2), 675–703.

Panel A
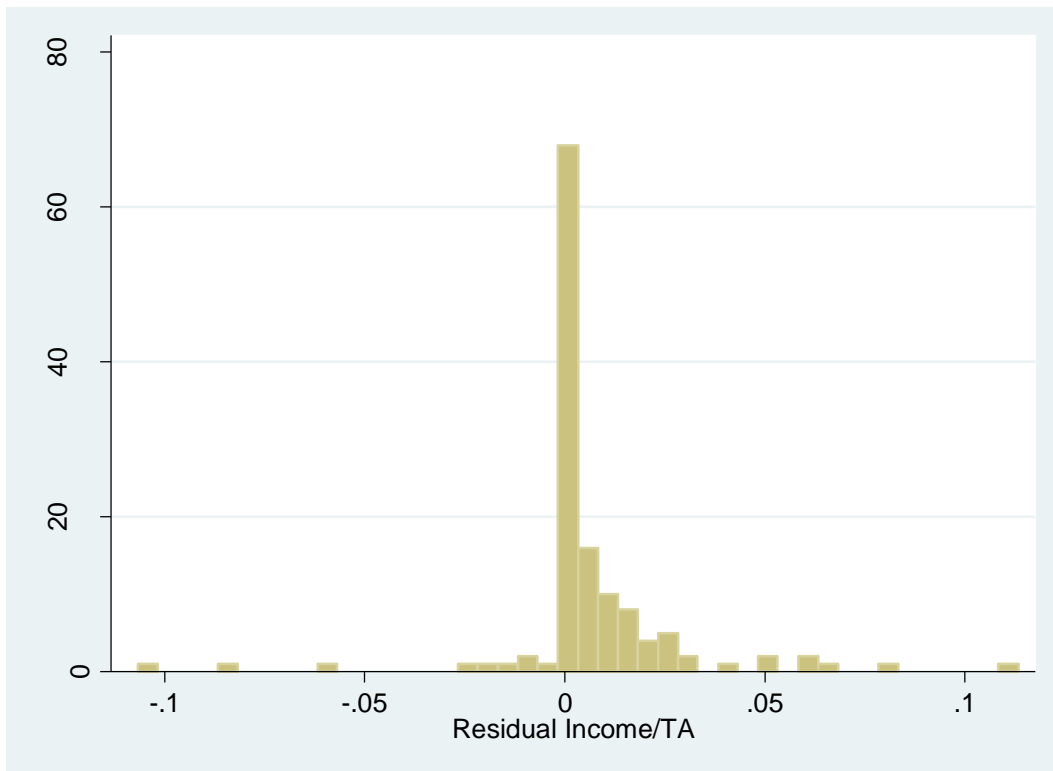
Panel B
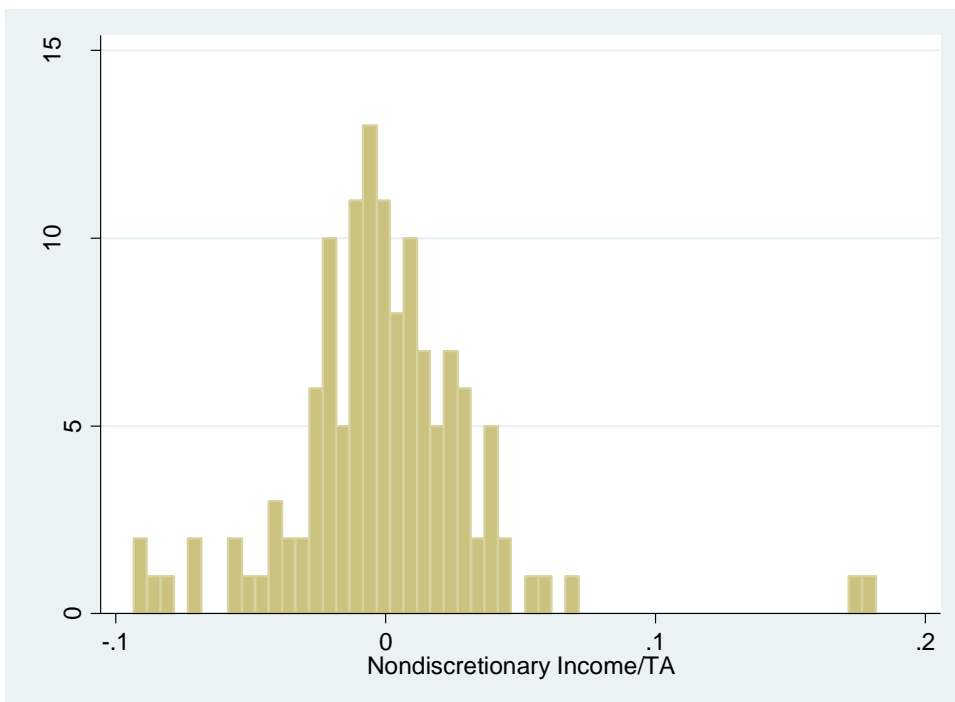
Figure 1 Comparison of income distributions.

Note: This figure reports the distribution of reported Residual Income scaled by lagged Total Assets (Panel A) and Nondiscretionary Income (Panel B) for NHS Foundation Trusts two years before achieving Foundation Trust (FT) status during the period 2003-2014. The interval width in the histograms is 0.005, following Leone et al. (2005). Frequency denotes the number of observations in a given interval.

Table 1 Operating and Residual Surplus/Deficit for NHS Foundation Trusts before/after achieving Foundation Trust (FT) status, and Trusts which never achieved this status (NonFTs)

Operating Income			Residual Income		
3y before becoming FT	N	%	3y before becoming FT	N	%
Deficit	1	0.76	Deficit	9	7.32
Surplus	131	99.24	Surplus	114	92.68
Total	132	100	Total	123	100
2y before becoming FT	N	%	2y before becoming FT	N	%
Deficit	3	2.17	Deficit	9	6.92
Surplus	135	97.83	Surplus	121	93.08
Total	138	100	Total	130	100
3y after becoming FT	N	%	3y after becoming FT	N	%
Deficit	17	12.32	Deficit	37	26.81
Surplus	121	87.68	Surplus	101	73.19
Total	138	100	Total	138	100
2y after becoming FT	N	%	2y after becoming FT	N	%
Deficit	19	13.87	Deficit	34	24.82
Surplus	118	86.13	Surplus	103	75.18
Total	137	100	Total	137	100
3y after becoming FT	N	%	3y after becoming FT	N	%
Deficit	21	16.28	Deficit	32	24.81
Surplus	108	83.72	Surplus	97	75.19
Total	129	100	Total	129	100
Trusts which never became FTs - NonFTs (2002-2014)					
	N	%		N	%
Deficit	265	20.54	Deficit	469	37.64
Surplus	1,025	79.46	Surplus	777	62.36
Surplus	1,290	100	Total	1,246	100

Note: This Table reports numbers of observations and % of NHS Foundation Trusts with positive/negative results (surplus/deficit) for Operating Income (*OI*) and Residual Income (*RI*) for three and two years before achieving Foundation Trust (FT) status, and one, two, and three years after having achieved this status during 2002-2014. Where numbers of observations for *OI* are different from the ones for RI for a particular time window, this difference is reflective of trusts which reported zero RI. The table further reports numbers of observations and % of NHS Trusts with a positive/negative result (surplus/deficit) for *OI* and *RI* for Trusts which never attained FT status (NonFTs) during 2002-2014.

Table 2 Descriptive statistics for NHS Foundation Trusts (FTs) and Trusts which never achieved FT status (NonFTs)

Panel A: Descriptive statistics for FTs 2y before achieving FT status

	N	Q1	Mean		Median		Q3	StDev	Skewness	Kurtosis
Cash	140	242	1,780	***	427	***	832	4973.1700	6.2286	48.3634
Current Assets (CA)	140	7,667	18,545	**	12,789	***	20,048	22309.9500	4.4875	29.1249
CA including LT debtors	140	7,723	18,655	**	12,789	***	20,100	22446.3000	4.4249	28.4185
Depreciation	140	2,613	5,497	***	4,382	*	6,801	4388.2300	2.2734	9.4563
Intangible assets	87	67	477	***	193	***	457	1068.1320	5.2750	32.4417
PP&E	140	67,625	121,026	***	102,381		152,895	81725.5800	1.7951	8.0366
Total net assets	140	65,171	120,304		100,516		153,799	82222.3100	1.7023	7.4204
Total assets	140	75,512	140,065	***	114,590		177,116	95166.1500	1.7119	6.9784
CFO	140	4,672	10,024		8,344	*	12,634	8475.9960	2.2552	9.3892
Total Income	140	100,557	165,698	***	137,790	**	202,120	104003.6000	1.6814	6.1385
Income from core activities	140	89,366	144,569	***	125,205	***	184,866	85829.5400	1.4853	5.6423
Total expenditure	140	96,907	161,043	***	134,902	**	194,121	101088.5000	1.6815	6.1590
OI (Operating income-surplus/deficit)	140	2,187	4,819	***	4,152	***	6,330	4376.9020	1.4083	7.8790
RI (Residual income -surplus/deficit)	132	11	771	***	78	***	1,055	2907.4230	0.8825	14.6301
$\Delta WC/TA_{t-1}$ (with LT debtors)	138	-0.0625	-0.0444	***	-0.0443	***	-0.0219	0.0416	-1.0937	9.2694
$\Delta WC/TA_{t-1}$ (without LT debtors)	138	-0.0640	-0.0450	***	-0.0443	***	-0.0219	0.0425	-1.1618	9.3095
OI/TA_{t-1}	138	0.0284	0.0385	***	0.0347	***	0.0496	0.0244	-0.1650	10.6369
RI/TA_{t-1}	130	0.0001	0.0063	***	0.0008		0.0114	0.0227	-0.0757	13.2545
OI/Staff costs	140	0.0304	0.0457	***	0.0423	***	0.0607	0.0286	-0.3704	7.7173
RI/Staff costs	132	0.0002	0.0073	***	0.0011	***	0.0128	0.0241	-0.5362	10.9056
Net assets/TA	140	0.8353	0.8549	***	0.8714	***	0.8993	0.0678	-1.9175	7.9196
Staff costs/TA_{t-1}	138	0.7084	0.9174	***	0.8685		1.0460	0.3216	2.1021	10.2626
Intangible assets/TA_{t-1}	85	0.0010	0.0038	***	0.0022	***	0.0038	0.0062	4.5152	28.1480
PP&E/TA_{t-1}	138	0.8916	0.9766	***	0.9750	***	1.0249	0.2127	3.5215	25.0182
CFO/TA_{t-1}	138	0.0564	0.0829	***	0.0767	***	0.1052	0.0398	0.8864	4.6381
Δ(Total Income)/TA_{t-1}	138	0.0625	0.1152		0.0985	***	0.1455	0.1724	8.1985	85.6968
Δ(Core Income)/TA_{t-1}	138	0.0508	0.0970		0.0842	**	0.1223	0.1525	7.8476	81.7957

| Δ(Total Expenditure)/TA_{t-1} | 138 | 0.0532 | 0.1104 | 0.0946 | ** | 0.1384 | 0.1676 | 8.0831 | 83.8983 |

Note: This Table reports descriptive statistics for NHS Foundation Trusts (FTs) two years before achieving FT status (Panel A) and for Trusts which never achieved FT status or NonFTs (Panel B) during 2003-2014. In Panel A (reporting results for FTs), there are further reported results (statistical significance) for a two-sample 2-tailed *t*-test on the equality of means (by assuming that variances between the two samples are unequal), and a two-sample *Wilcoxon rank-sum (Mann-Whitney)* test for medians between FTs and Trusts which never became FTs, next to the relevant variable mean or median value. Variable definitions are reported in Section 3 and 4.1.*, **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.

Panel B: Descriptive statistics for comparison sample consisting of Trusts (NonFTs) which never achieved FT status (during 2003-2014)

	N	Q1	Mean	Median	Q3	StDev	Skewness	Kurtosis
Cash	1,348	288	4,952	946	5,784	9519.3410	4.0006	23.9440
Current Assets (CA)	1,352	8,493	22,755	16,674	27,881	23849.2000	3.4798	21.8348
CA including LT debtors	1,352	8,586	23,461	17,120	28,660	24484.0300	3.3314	20.2662
Depreciation	1,347	2,377	7,088	5,098	9,469	6712.5100	2.0605	8.8620
Intangible assets	944	114	1,021	409	1,186	1881.9110	5.4634	45.8817
PP&E	1,347	54,605	144,851	111,607	202,883	129367.9000	2.0565	10.8164
Total net assets	1,352	48,335	122,250	94,587	172,903	103961.2000	1.6459	7.2511
Total assets	1,352	66,654	168,622	128,240	233,955	147716.5000	2.1417	11.4486
CFO	1,356	2,406	9,464	6,891	14,152	13823.4800	0.9476	10.4139
Total Income	1,356	93,730	209,234	166,167	271,251	168611.1000	2.0268	9.0513
Income from core activities	1,356	82,796	184,624	152,235	238,227	140437.3000	1.7534	7.5182
Total expenditure	1,356	92,559	207,639	164,220	267,949	169528.6000	2.0919	9.5478
OI (Operating income-surplus/deficit)	1,356	486	1,693	2,482	6,411	14461.5500	-7.0306	93.0843
RI (Residual income -surplus/deficit)	1,308	-2,515	-3,776	29	1,015	17468.0800	-8.2678	109.1345
$\Delta WC/TA_{t-1}$ (with LT debtors)	1,283	-0.0855	-0.0601	-0.0520	-0.0257	0.1119	-2.4053	41.1344
$\Delta WC/TA_{t-1}$ (without LT debtors)	1,283	-0.0856	-0.0612	-0.0517	-0.0257	0.1133	-2.3705	39.3528
OI/TA_{t-1}	1,290	0.0102	0.0164	0.0305	0.0440	0.0810	-7.3089	87.2995
RI/TA_{t-1}	1,246	-0.0210	-0.0173	0.0003	0.0085	0.0933	-6.3391	62.4565
OI/Staff costs	1,356	0.0095	0.0191	0.0318	0.0503	0.0730	-4.0176	32.3446
RI/Staff costs	1,308	-0.0248	-0.0238	0.0004	0.0101	0.1305	-15.2672	333.5026
Net assets/TA	1,352	0.7044	0.7431	0.8133	0.8716	0.2035	-2.1736	9.2288
Staff costs/TA_{t-1}	1,290	0.7213	1.1059	0.8622	1.1154	1.0566	5.8364	47.2779
Intangible assets/TA_{t-1}	902	0.0012	0.0083	0.0035	0.0083	0.0242	12.9968	208.7218
PP&E/TA_{t-1}	1,284	0.8172	0.9165	0.9100	0.9953	0.3475	7.9215	129.5414
CFO/TA_{t-1}	1,290	0.0390	0.0715	0.0675	0.1000	0.0944	-0.0475	41.7645
Δ(Total Income)/TA_{t-1}	1,290	0.0292	0.0990	0.0733	0.1296	0.3011	9.3868	196.2422
Δ(Core Income)/TA_{t-1}	1,290	0.0257	0.0903	0.0678	0.1190	0.2908	9.5266	201.3858
Δ(Total Expenditure)/TA_{t-1}	1,290	0.0269	0.1027	0.0796	0.1380	0.3125	8.0498	169.8572

Table 3 Earnings management by NHS Foundation Trusts (FTs) before achieving FT status vs. Trusts which never achieved FT status (NonFTs)

Panel A: Pearson correlation coefficient between discretionary accruals (*DA*) - Nondiscretionary income (*NondiscrInc*)

Pearson correlation coefficient between *DA – NondiscrInc* Panel B: Test for means/medians for FT						
	NHS FTs		Comparison sample- NonFTs		Comparison of correlation coefficients between FTs/NonFTs	
	Correlation coef.	*N*	*Correlation coef.*	*N*	*Fisher r-to-z transformation - Z-stat*	
2y before becoming FT	-0.8251	130	-0.5247	1,052	-6.28	***
3y before becoming FT	-0.9679	123	-0.5484	1,162	-15.04	***

Panel B: Test for the statistical significance of mean/median *DA* for NHS FTs before achieving FT status

Mean *DA*	*N*	*Mean*	*StError*	*t-stat.*	*Pr(|T|>|t|)*		*Pr(T>t)*	
2y before becoming FT	138	0.0067	0.0033	1.9908	0.0485	**	0.0242	**
3y before becoming FT	132	0.0098	0.0039	2.4884	0.0141	**	0.0070	***
Median *DA*	*N*	*Median*	*Z-stat.*	*Prob>|z|*				
2y before becoming FT	138	0.0053	1.9780	0.0480	***			
3y before becoming FT	132	0.0095	2.6010	0.0093	**			

Panel C: Tests for differences in means/medians between FTs-NonFTs

Means		*N*	*Mean*	*StError*	*t-stat.*	*Pr(|T|>|t|)*		*Pr(T < t)*	
2y before becoming FT	NonFTs	1,088	-0.0016	0.0023					
	FTs	138	0.0067	0.0033					
	Difference		-0.0083	0.0041	-2.0388	0.0424	**	0.0212	**
3y before becoming FT	NonFTs	1,216	-0.0008	0.0021					
	FTs	132	0.0098	0.0039					
	Difference		-0.0106	0.0045	-2.3793	0.0182	**	0.0091	***
Medians		*N*	*Z-stat.*	*Prob>|z|*					
2y before becoming FT	NonFTs	1,088							
	FTs	138	-1.3720	0.1700					

3y before becoming FT	NonFTs	1,216			
	FTs	132	-1.6670	0.0955	*

Note: Table 3 Panel A reports Pearson correlation coefficients between discretionary accruals (*DA*) and Nondiscretionary income (*NondiscrInc*) for NHS Foundation Trusts (FTs) before achieving FT status (for two and three years before achieving FT status) vs. NonFTs, and also results for the *Fisher r-to-z transformation - Z-statistic* for comparative tests between the correlation coefficients of the two types of trusts. Panel B reports one-sample results for *t-tests* for mean, and Wilcoxon signed rank tests for median *DA* for FTs before achieving FT status. Finally, Panel C reports two-sample results for comparative *t-tests* for means (under the assumption of unequal variances between the two samples) and two-sample *Wilcoxon rank-sum (Mann-Whitney)* tests for medians between FTs before achieving FT status vs. NonFTs. *DA* are estimated as described in Section 3.1. *, **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.

Table 4 Testing for earnings management by performing propensity score matching between NHS Foundation Trusts (FTs) before achieving FT status vs. Trusts which never achieved FT status (NonFTs)

2y before becoming FT

Probit model estimation	Coef.	StError	Z-stat	
c	0.1383	0.6893	0.20	
$LnTA$	-0.0999	0.0549	-1.82	*
$Staff\ costs/TA_{t-1}$	-0.2756	0.1107	-2.49	**
N	1,424			
X^2	10.54	***		
Log likelihood	-447.903			
Pseudo R^2	0.0116			

Mean DA comparison					
	Treated	Control	% bias	t-test	
DA	0.0067	-0.0036	16.90	1.84	*

3y before becoming FT

Probit model estimation	Coef	St Er	Z-stat.	
c	0.0489	0.6505	0.08	
$LnTA$	-0.1024	0.0521	-1.97	**
$Staff\ costs/TA_{t-1}$	-0.2620	0.1110	-2.36	*
N	1,607			
X^2	9.72	***		
Log likelihood	-451.475			
Pseudo R^2	0.0106			

Mean DA comparison					
	Treated	Control	% bias	t-test	
DA	0.0098	-0.0084	29.8	3.04	***

Note: The table reports results for propensity score matching performed between NHS Foundation Trusts (FTs) two and three years before achieving FT status, and NonFTs. The Table first reports results for probit model estimation (first step of the propensity score matching procedure, for regressors Trust size ($LnTA$) and human resource cost intensity ($Staff\ costs/TA_{t-1}$)), and then results on the comparison of discretionary accruals (DA) between matched FTs and NonFTs, following the propensity score matching procedure. There are reported mean values for DA, the % reduction in bias after performing propensity score matching (according to size human resource cost intensity, and year) and values of *t-statistics* when performing a comparison between mean DA for the two matched firm groups. The propensity score matching procedure and variable definitions are described in Section 4.2. **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.

Table 5 Regression estimations on the zero profit hypothesis - comparison between NHS Foundation Trusts (FTs) before achieving FT status and Trusts which never achieved FT status (NonFTs)

	FTs				NonFTs - Comparison sample		
2y before becoming FT	*Coef.*	*t-stat.*			*Coef.*	*t-stat.*	.
c	0.0044	3.81	***	c	-0.0045	-3.35	***
NondiscrInc	-1.0132	-35.03	***	*NondiscrInc*	-0.3457	-3.48	***
Lagged RI/TA$_{t-1}$	0.1121	1.45		*Lagged RI/TA$_{t-1}$*	0.0503	1.72	*
Lagged DA	0.0243	0.78		*Lagged DA*	-0.0864	-1.54	
F-stat.	495.33	***		*F-stat.*	6.32	***	
R-Squared	0.9440			*R-Squared*	0.2560		
N	110			*N*	1,058		
VIF NondiscrInc	1.04			*VIF NondiscrInc*	1.02		
3y before becoming FT	*Coef.*	*t-stat.*			*Coef.*	*t-stat.*	
c	0.0040	3.59	***	c	-0.0089	-5.37	***
NondiscrInc	-0.9968	-23.50	***	*NondiscrInc*	-0.5412	-4.18	***
Lagged RI/TA$_{t-1}$	0.1165	1.52		*Lagged RI/TA$_{t-1}$*	0.0728	1.43	
Lagged DA -	-0.0246	-0.85		*Lagged DA*	-0.0197	-0.52	
F-stat.	207.84	***		*F-stat.*	6.68	***	
R-Squared	0.9400			*R-Squared*	0.2570		
N	110			*N*	1,057		
VIF NondiscrInc	1.03			*VIF NondiscrInc*	1.02		

Coefficient comparison tests for *NondiscrInc* between FTs and NonFTs regressions

2y before becoming FT		
X^2*stat*	3.88	**

3y before becoming FT		
X^2*stat*	11.24	***

Note: The Table reports estimation results for the equation: $DA_{i,t} = \alpha_0 + \alpha_1 NondiscrInc_{i,t} + \alpha_2 RI_{i,t-1} + \alpha_3 DA_{i,t-1} + \varepsilon_{i,t}$, estimated for prospective FTs before (for two and three years before achieving FT status) and NonFTs (comparison sample). The dependent variable *DA* is discretionary accruals, while independent variables include Nondiscretionary income (*NondiscrInc*), lagged Residual Income *(RI$_{t-1}$)* and lagged *DA*. The equation is estimated using OLS and heteroscedasticity robust standard errors. There are further reported Variance Inflation Factors (VIF) for the variable of interest *NondiscrInc*, and results for coefficient comparison tests between FT and Non FTs for *NondiscrInc*. Variable definitions are described in Sections 3.1 and 4.2. *, **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.

Table 6 The impact of potential earnings management by NHS Foundation Trusts (FTs) before achieving FT status on their subsequent operating performance

Panel A: Dependent variable = binary variable equal to one if *RI* or *OI* is positive one year post-FT status, and zero otherwise

	Residual income (*RI*)			Operating Income (*OI*)		
	Coef.	*Z-stat*		*Coef.*	*Z-stat*	
c	14.5599	1.61		21.8680	2.10	**
DA	-15.9687	-1.96	**	-17.9043	-1.72	*
OI/TA$_{t-1}$	17.9989	2.47	**	-0.6305	-0.07	
LnTA	-0.3306	-0.69		-1.1787	-2.12	**
Δ(Core Income)/TA$_{t-1}$	10.0847	2.01	**	14.3884	2.14	**
Δ(Total Expenditure)/TA$_{t-1}$	-6.1756	-1.31		-12.7764	-2.09	**
Net assets/TA	-9.6858	-1.72	*	-5.8756	-0.84	
ΔWC/TA$_{t-1}$	16.3550	2.13	**	13.3779	1.19	
Staff costs/TA$_{t-1}$	-1.4647	-1.24		-0.1649	-0.10	
Intangible assets/TA$_{t-1}$	26.4727	0.35		134.7281	1.26	
Wald statistic	16.17	*		12.74		
Pseudo R^2	0.1198			0.1129		
Pseudo likelihood	-66.8042			-41.6685		
N	134			134		
VIF DA	1.57			1.57		

Panel B: Dependent variable = the level of *RI* or *OI* (scaled by lagged TA) one year post-FT status

	Residual income (*RI*)			Operating Income (*OI*)		
	Coef.	*t--stat*		*Coef.*	*t--stat*	
c	0.3427	1.87	*	0.3643	2.04	**
DA	-0.1984	-1.94	*	-0.1441	-1.34	
OI/TA$_{t-1}$	0.2317	1.73	*	0.2102	1.43	
LnTA	-0.0224	-1.56		-0.0162	-1.17	
Δ(Core Income)/TA$_{t-1}$	0.1795	1.93	*	0.0124	0.08	
Δ(Total Expenditure/)TA$_{t-1}$	-0.1291	-1.70	*	0.0020	0.02	
Net assets/TA	-0.0707	-1.07		-0.1615	-1.57	
ΔWC/TA$_{t-1}$	0.2243	1.51		0.3042	1.93	*
Staff costs/TA$_{t-1}$	-0.0177	-1.14		0.0030	0.15	
Intangible assets/TA$_{t-1}$	0.0900	0.10		-0.7085	-0.79	
F-stat	2.40	**		1.81	*	
R^2	0.1134			0.1217		
N	134			134		
VIF DA	1.64			1.64		

Note: The Table reports estimation results for the equation:
$\{Pr[Oper.Surplus_{i,t+3} = 1], Pr[Ret.Surplus_{i,t+3} = 1], OI_{i,t+3}, RI_{i,t+3}\} = \alpha_0 + \alpha_1 DA_{i,t} + \alpha_2 OI_{i,t+2} + \alpha_3 LnTA_{i,t} + \alpha_4 \Delta(Core\ Income)_{i,t} + \alpha_5 \Delta(Total\ Expenditure)_{i,t} + \alpha_6 Leverage_{i,t} + \alpha_7 \Delta WC_{i,t} + \alpha_8 Staff\ Costs_{i,t} + \alpha_9 Intangible\ Assets_{i,t} + \varepsilon_{i,t}$ estimated for prospective FTs during 2003-2014. The dependent variable is either a binary variable equal to one if Residual Income (*RI*) or Operating Income (*OI*) is positive one year post-FT status, and zero otherwise (Panel A) or the level of *RI* or *OI* (scaled by lagged *TA*) one year post-FT status (Panel B). When the dependent variable is in binary form, the equation is estimated as a probit model, while the equation is estimated using OLS when this variable is continuous, with heteroskedasticity robust standard errors in either case. There are further reported Variance Inflation Factors (VIF) for *DA* as the variable of interest. Variable definitions are described in Sections 3.1 and 4.3. *, **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.

Table 7 Earnings management by NHS Foundation Trusts (FTs) in the years after having achieved FT status

Test for means/medians for FT after achieving foundation status

Mean *DA*	N	Mean	StError	t-stat	Pr(|T|>|t|)	Pr(T>t)
1y after becoming FT	132	0.0041	0.0089	0.4641	0.6434	0.3217
2y after becoming FT	126	0.0071	0.0052	1.3605	0.1761	0.0881 *
3y after becoming FT	118	-0.0064	0.0075	-0.8558	0.3939	0.8031
Median *DA*	N	Median	Z-stat	Prob>|z|		
1y after becoming FT	132	0.0128	2.6120	0.0090	***	
2y after becoming FT	126	0.0123	2.1630	0.0305	**	
3y after becoming FT	118	0.0064	0.6700	0.5028		

Note: This Table reports mean and median values for discretionary accruals (*DA*) for NHS FTs for the next one, two, and three years after the trust had achieved FT status. The Table further reports results for one-sample *t-tests* for mean and Wilcoxon signed rank tests for median *DA* for FTs after having achieved FT status. Tests for mean *DA* are both 2-tailed (*Pr(|T|>|t|)*) and 1-tailed *Pr(T>t)*, testing for the significance of positive *DA* in the last case. *DA* are estimated as described in Section 3.1. *, **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.

Table 8 Earnings management among NHS Foundation Trusts (FT): Robustness controls

Panel A: Trusts with PFIs - Zero earnings benchmark regression

Trusts with PFIs			
2y before becoming FT	*Coef.*	*t-stat*	
c	0.0057	1.36	
NondiscrInc	-0.7208	-4.37	***
F-stat	8.28	***	
R-Squared	0.5379		
N	56		
3y before becoming FT	*Coef.*	*t-stat*	
c	0.0044	3.23	***
NondiscrInc	-0.9969	-19.43	***
F-stat	168.26	***	
R-Squared	0.9643		
N	52		

Panel B: Results for alternative *DA* measure (*DA1*) - Zero earnings benchmark regression

	NHS Trusts achieving FT status			Comparison sample - NHS Trusts which never became FTs		
2y before becoming FT	*Coef.*	*t-stat*			*Coef.*	*t-stat*
c	0.0021	1.03		c	-0.0051	-3.54	***
NondiscrInc	-0.6386	-6.29	***	*NondiscrInc*	-0.3160	-3.15	***
F-stat	19.97	***		*F-stat*	5.25	***	
R-Squared	0.6165			*R-Squared*	0.2300		
N	121			*N*	961		
3y before becoming FT	*Coef.*	*t-stat*			*Coef.*	*t-stat*
c	0.0041	1.98	**	c	-0.0099	-5.42	***
NondiscrInc	-0.8567	-7.68	***	*NondiscrInc*	-0.5130	-3.77	***
F-stat	24.19	***		*F-stat*	5.77	***	
R-Squared	0.7039			*R-Squared*	0.2298		
N	121			*N*	960		

Coefficient comparison tests for *NondiscrInc* between FTs and NonFTs regressions

2y before becoming FT		
X^2*stat*	5.21	**
3y before becoming FT		
X^2*stat*	41.85	***

Panel C: Results for alternative *DA* measure (*DA1*) - Subsequent operating performance regression

Dependent variable = binary variable equal to one if *RI* or *OI* is positive one year after the Trust had achieved foundation status, and zero otherwise

	Residual income (*RI*)			Operating Income (*OI*)		
	Coef	*Z-stat*		*Coef*	*Z-stat*	
c	11.0299	1.38		21.6598	1.79	*
DA1	-18.5390	-2.58	***	-26.3025	-2.89	***
Wald stat	15.73	*		14.35		
Pseudo R^2	0.1315			0.1672		
Pseudo likelihood	-65.9155			-39.1182		

	N		134		134	

Dependent variable = the level of *RI* or *OI* (scaled by lagged TA) one year after the Trust had achieved foundation status

	Residual income (*RI*)			Operating Income (*OI*)		
	Coef.	t-stat		Coef.	t-stat	
c	0.2885	1.64		0.3240	1.90	*
DA1	-0.2585	-2.76	***	-0.2224	-2.36	**
F statistic	2.51	**		2.13	**	
R^2	0.1201			0.1291		
N	134			134		

Panel D: Earnings management by NHS Foundation Trusts in the years after having achieved FT status - results for alternative *DA* measure (*DA1*)

Test for means/medians for FT after achieving foundation status

Mean *DA1*	N	Mean	StError	t-stat	Pr(/T/>/t/)	Pr(T>t)
1y after becoming FT	134	0.0007	0.0049	0.1352	0.8927	0.4463
2y after becoming FT	129	-0.0059	0.0042	-1.4066	0.1620	0.9190
3y after becoming FT	119	0.0051	0.0046	1.1232	0.2636	0.1318

Median *DA1*	N	Median	Z-stat	Prob>/z/		
1y after becoming FT	134	-0.0033	-0.6320	0.5275		
2y after becoming FT	129	0.0016	-0.1120	0.9111		
3y after becoming FT	119	0.0045	1.5460	0.1221		

Note: Panel A of the table reports results for Equation (2) on the zero profit hypothesis, estimated separately for FTs with Private Investment Initiatives (PFIs), for two and three years before achieving FT status, for the variable of interest *NondiscrInc*. Panels B, C, and D report key results for the main variables of interest for an alternative discretionary accrual measure, *DA1*, estimated as described in Section 3.1: Panel B reports results for Equation (2) on the zero profit hypothesis, Panel C for Equation (3), examining the impact of potential earnings management by prospective FTs before achieving FT status on their subsequent operating performance, and finally Panel D reports mean and median values for discretionary accruals under the *DA1* definition, for FTs for the next one, two, and three years after the trust had achieved FT status, and corresponding one-sample *t-tests* for mean (both 2-tailed (*Pr(/T/>/t/)*) and 1-tailed *Pr(T>t)*), and *Wilcoxon signed rank* tests for median *DA1*. Variable definitions are provided in Sections 3 and 4. *, **, and *** indicates statistical significance at 10%, 5% and 1%, respectively.