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Aly, Doaa A ORCID logoORCID: <https://orcid.org/0000-0002-2037-6879>, Abdelqader, Muath ORCID logoORCID: <https://orcid.org/0000-0003-0698-1367>, Darwish, Tamer K ORCID logoORCID: <https://orcid.org/0000-0003-1815-9338> and Katarzyna, Scott (2023) The impact of healthcare board characteristics on NHS trust performance. Public Money and Management, 43 (6). pp. 594-601. doi:10.1080/09540962.2021.2022272

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The Impact of Healthcare Board Characteristics on Performance of NHS: The Case of England

Aly, Doaa A., Abdelqader, Muath., Darwish, Tamer, K., and Katarzyna, Scott

Abstract

This study seeks to explore the impact of board characteristics of England's National Health Services (NHS) on their financial and non-financial performance. Based on publicly available annual reports, we found that profitability and effectiveness of public hospitals are influenced by their board structure. Findings showed that board stability (with minimal directors' turnover), clinical representation on the board, percentage of board meetings attendance, number of Non-executive directors on the board, and CEO length of service are notably positive performance indicators.

Keywords: Board characteristics; CEO; financial and non-financial performance; NHS; England.

Introduction

The recent global financial crisis has thrown a spotlight on corporates' boards and their function (Abdulsamad et al., 2018). The board of directors is considered a very essential and effective mechanism of corporate governance (Singh et al., 2018). This important role of board of directors is attributed to its responsibility in monitoring the company's performance and protecting shareholders' rights. Consequently, scholars have explored boards of directors' characteristics and their implications on firms' performance across different industries (see, for example, Walker, 2009; Gupta & Sharma, 2014). Within the healthcare industry, this particular relationship gains another dimension due to the huge pressure faced and unique services that healthcare organizations provide. Boards within healthcare institutions are not only tasked with general performance, but also, with ensuring the quality of performance, implying that healthcare boards are entrusted to deliver the highest standards of patient care (Chambers, 2012).

Hospitals' performance is increasingly becoming scrutinized due to economic factors, legislation changes, and the awareness and expectations of their societies (Alexander & Lee, 2006; Furnival et al., 2018). Hence, some researchers attempted to examine how hospitals' outcomes might be improved and how their governance characteristics impact their performance (see, for example, Bai, 2013; Rotar et al., 2016). For instance, in the UK, since 2003, the National Health Services (NHS) Trusts in England have been increasingly reconstituted as Foundation Trusts (FTs); this transformation has meant that hospitals are now expected to run similarly to business institutions with board members as their representatives. There is a lack of studies that established the effectiveness of these newly formed boards. Hence, further investigation in relation to an efficient, trustworthy, and functional hospital governance is therefore essential.

In addition to the research gap highlighted above, prior work has also not measured the financial and non-financial performance of all existing NHS-FTs and the relationship between performance and board characteristics is yet to be explored. Hence, we explore how specific board structures affect financial and non-financial outcomes of FTs hospitals, and draw out the implications for theory and practice.

The paper is organized as follows: the next section introduces the healthcare system in the UK. A review of prior research that discussed the effect of board characteristics on organizational performance is then presented. Following the latter, we deduct a number of related hypotheses; we then present our methods and analysis, followed by the discussion and conclusions of the research main findings.

Background of the Healthcare System in the UK

Healthcare in the UK is state owned and differently and independently runs of each other in its four countries: England, Wales, Scotland, and Northern Ireland (Timmins, 2013). Since the establishment of NHS in 1948, Aall four parts of the NHS went through organizational re-structuring several times across the 19th and 20th centuryies, yet, NHS England is the definite pioneer and the largest in this respect (Bevan et al., 2014). FTs were founded in 2003 under the Health and Social Care Act 2003 (Wright et al., 2012), giving them greater autonomy to self-

manage to be more cost mindful and savvy. The purpose was to decentralize the running of hospitals from government to local organizations, as the latter better understand their residents' specific healthcare needs. The new financial and management freedom has necessitated the implementation of adjusted governance and accountabilities systems (Wright et al., 2012). This has been at a time of many pressures on the NHS and the limited funding allocated to it by the government, which has a direct impact on the NHS health outcomes and productivity (Niemietz, 2016).

Healthcare Governance

Corporate governance is a system assuring that organizations responsibly manage their affairs and are socially conscientious in their decision-making processes. The board of directors is the supervisor of this system, which consists of individuals who are entrusted with all aspects of its activities (Mallin, 2012). The ultimate role of the board is to provide strategic directions, develop organizational identity and culture, and monitor the performance against setting aims and objectives.

A unitary board system is common for countries, such as the UK and the US, and it is characterized by executive and non-executive directors sitting on one single board (Mallin, 2012). In Scotland, board structure is unified and includes local authority representation, while in Wales, the model is stakeholders based (Chambers, 2012). In England, since 1991, all NHS hospitals' boards were unitary in structure (Mallin, 2012). However, FTs adopted a two-tier board format since their inception in 2003, namely a **councilboard** of governors and a board of directors (Millar et al., 2019). In other words, in order for English Trusts to reach FTs status, they had to adopt the operating framework outlined in the new act, and apart from setting up a board of directors ~~and electing~~ a chairman, FTs have to elect a **councilboard** of governors representing a range of stakeholders from their local communities. The **councilboard** of governors can count up to 50 members, whereas the board of directors is typically made of around 11 individuals (~~Chambers, 2012~~). The **councilboard** of governors oversees management's strategic and financial ~~decisions to ensure~~ that they are made in the best interest of the Trust's patients and wider stakeholders. So far, 153 out of 233 Trusts had managed to reach FT ~~status~~ (NHS Confederation, 2017). Currently, FTs

deliver several over 50% of all hospital, mental health, and ambulance services in the UK (GOV UK, 2016), making them an extremely important component of the English NHS system.

Theoretical Framework

Although there is no single theoretical foundation of corporate governance, most of the previous studies have mainly relied on the agency theory (Mallin, 2012). This theoretical strand has been widely used in studies that explored the relationship between characteristics of hospitals governance and their performance (e.g., Ballantine et al., 2008; Collum et al., 2014). However, Ellwood & Garcia-Lacalle (2015) used stakeholder theory and stewardship theory in measuring the impact of board's female representation on the performance of NHS-FTs. Stewardship, stakeholder, and resource dependency perspectives were also adopted by Freeman et al. (2016) in measuring patient safety outcomes. Resource dependency and managerialism theories were also employed, particularly in relation to the effect of board characteristics on hospitals' performance (see Abor, 2014).

Stakeholder theory is believed to be relevant for a study of the public, and technically, not-for-profit organizations, such as a FTs (Connolly et al., 2013). FTs ought to be run in the best interests of all stakeholders, and it is essential that their boards are formed in such a way that these interests are protected, balanced, and at the heart of all of their decisions. From a resource dependency point of view, ensuring a diverse and multidisciplinary board is crucial in safeguarding public interests. Therefore, stakeholder theory and resource dependency theory have been recognized as mostly suited in light of the complexity of the NHS-FTs and their obligations towards the communities they serve. Furthermore, with the increasing funding pressures and the resulted tendency to economize services and improve efficiencies, it is also appropriate to take a managerialism approach in developing arguments in this investigation. Managerialism is concerned with a top-down hierarchical business structure and designed to improve productivity and exercise control (Carlisle, 2011). The FTs' boards have topmost authority to deliver organizational goals and objectives in a transparent and effective way. To conclude, we employed stakeholder, resource dependency, managerialism and agency theories as main theoretical lens in this work.

Hypotheses Development

This study seeks to explore how the frequency of board meetings and attendance, board size and independence, gender diversity, clinical representation, remuneration of members, and their length of service influence the financial and non-financial outcomes of the FTs. We now deduct a number of hypotheses based on the theoretical and empirical rationale in relation to the impact of each of these board characteristics on performance in general and in the healthcare sector in particular.

Board Meetings Statistics and Performance

The number of board meetings held during the year was reported to have a significant effect on firm performance (Gray & Nowland, 2018). Board meetings and attendance are essential in enhancing the monitoring role of the board of directors as they considered a means of getting the needed information about the firm (Johl et al., 2015). Frequency of meetings was examined in a study on hospitals performance by Culica & Prezio (2009); their findings recommended hospitals' boards to meet less frequently to improve their financial performance. However, Abor (2014) concluded that increasing the number of meetings enhances occupancy, discharge, and quality performance measures. In another work, Bhatt & Bhattacharya (2015) confirmed that the number of board meetings held during the year had a non-significant effect on organizations' performance, while the impact of attendance of board members on performance was positive. Similarly, Abdulsamad et al. (2018) reported a non-significant relationship between the number of board meetings and firm performance. Despite the mixed results of the prior work, it is expected that the number of board meetings and attendance will improve the effectiveness of the board's monitoring role. Hence, the following hypotheses are proposed:

H_1 = *There is a significant positive relationship between NHS-FTs number of board meetings and their financial performance.*

H_2 = *There is a significant positive relationship between NHS-FTs board meetings attendance and their financial performance.*

H_3 = *There is a significant positive relationship between NHS-FTs number of board meetings and their non-financial performance.*

H₄ = There is a significant positive relationship between NHS-FTs board meetings attendance and their non-financial performance.

Board Size and Independence and Performance

Another area thought to be affecting hospitals' performance is board size. Board's size is considered an essential feature of its effectiveness (Allini et al., 2016; Abdelqader et al., 2021). The larger the board size the broader the expertise; this joint experience leads to effective decision-making and improved firms' performance (Zahra & Pearce, 1989). Within the healthcare industry, Bai (2013) reported that board size is negatively related to social performance in for-profit hospitals, but positively in non-profit hospitals. The understanding behind the results in non-profit healthcare organizations is that the larger the board size the more the resources allocated to the benefits of the society, which supports the social performance. However, Abor (2014) demonstrated that hospitals are more effective with smaller boards, her study postulates that when hospitals' boards have numerous directors their effectiveness is compromised. Hence, the fifth and sixth hypotheses are proposed as follows:

H₅ = There is a significant positive relationship between NHS-FTs board size and independence and their financial performance.

H₆ = There is a significant positive relationship between NHS-FTs board size independence and their non-financial performance.

Gender of Board Members and Performance

Based on the resource dependency theory, board diversity is expected to have a positive impact on firm performance; this stands on the idea that gender diversity on the board expands the skills and knowledge of the board and provides it with more views and opinions (Reguera-Alvarado et al., 2017). A positive correlation has been found between the presence of female directors and firm performance (see Conyon & He, 2017). It has been proposed that female directors are highly influential, and a higher female representation on the board is associated with improved information sharing and better board dynamics (Elstad & Ladegard, 2012). In the UK context,

=Pasarribu (2017) reported a non-significant relationship between the existence of female directors and firm performance; the author justified these results based on the idea that most of the female directors were non-executive, which makes their contribution less evident. In the healthcare industry, Ellwood & Garcia-Lacalle (2015) noted that despite that the high number of women on boards is linked with improving social outcomes and reducing negligence costs, it did not affect the financial situation or quality of the FTs studied. Similarly, Abor (2014) discovered that diverse boards had contributed to better quality care in Ghanaian hospitals; her study showed that female representation on the boardroom is positively associated with a higher discharge rate in line with the raised standards of medical care. Based on the previous discussion, it is expected that board diversity will have a positive impact on performance, and hence, the seventh and eighth hypotheses are stated as follows:

H₇ = There is a significant positive relationship between NHS-FTs board gender diversity and their financial performance

H₈ = There is a significant positive relationship between NHS-FTs board gender diversity and their non-financial performance

Clinical Representation and Performance

Both the resource dependency and managerialism theories support incorporating medical staff into the governance system drawing on their field of expertise. Baker & Denis (2011) and Veronesi et al. (2014) stated that having a medical leadership and more doctor involvement are effective tactics in enhancing the performance of health care organizations. It is expected that physicians are bound by medical ethics when serving in hospital boards, therefore, putting the welfare of the patients and public at the forefront of their arguments (Bai, 2013). Veronesi et al. (2015) found that the participation of doctors on the board panel improved patients' experience and care outcomes for selected English NHS Trusts. Similarly, a study by Ibrahim et al. (2011), on 224 directors from 19 hospitals, concluded that directors with healthcare background prioritize patients' care and medical improvements above other non-clinical results. However, Abor (2014) ascertained that although a board with an above average percentage of medical staff is positively correlated with hospital efficiency regarding the occupancy level, it is essentially achieved at higher operational cost and

spend per bed ratio. Interestingly, Bai's (2013) analysis of data from Californian hospitals revealed that the inclusion of physicians on boards leads to better social outcomes in for-profit hospitals but the link is not-significant for their not-for-profit equivalents. Therefore, based on the above discussion, the ninth and tenth hypotheses are deducted as follows:

H₉ = There is a significant positive relationship between NHS-FTs clinical representation on the board and their financial performance.

H₁₀ = There is a significant positive relationship between NHS-FTs clinical representation on the board and their non-financial performance.

Remuneration and Performance

The amount of managerial remuneration and the way of linking it to performance is debatable. Agency theory suggests that chief executive officer (CEO) compensation is considered an effective tool in reducing agency cost through aligning managers' interests with shareholders' interests (Merhbi et al., 2006). Using a sample of Australian companies, Merhbi et al. (2006) reported a significant positive relationship between CEO pay and firm performance. Similarly, Kato & Kubo (2006) concluded a positive connection between CEO pay and firm profitability. However, a non-significant relationship between CEO remuneration and financial performance was stated by (Ballantine et al., 2008). Likewise, Raithatha & Komera (2016) did not detect a significant pay-

performance relationship. Despite the above general results, it is expected that board remuneration will have a positive effect on performance. Thus, the eleventh and twelfth hypotheses are stated as follows:

H₁₁ = There is a significant positive relationship between NHS-FTs remuneration and their financial performance

H₁₂ = There is a significant positive relationship between NHS-FTs remuneration and their non-financial performance

Turnover of board members is another aspect of board characteristics that was reported by scholars to have an impact on firm performance. For example, Eldenburg et al. (2004) concluded a negative association between financial performance and CEO turnover. Similarly, using a sample of NHS Trusts, Ballantine et al. (2008) investigated the relationship between CEO turnover and performance for the period 1998 to 2005 and stated that a high CEO turnover negatively impacted hospitals' economic situation. However, Caldarelli et al. (2013) reported a non-significant relationship between CEO's performance and her/his service period. Accordingly, the last four hypotheses are formulated as follows:

H₁₃ = There is a significant positive relationship between NHS-FTs length of service of board members and their financial performance

H₁₄ = There is a significant negative relationship between NHS-FTs board members turnover and their financial performance

H₁₅ = There is a significant positive relationship between NHS-FTs length of service of board members and their non-financial performance

H₁₆ = There is a significant negative relationship between NHS-FTs board members turnover and their non-financial performance

Research Methodology

Data Collection and Sample Selection

This research examines board characteristics in the context of NHS-FTs for the financial year 2016, as this was the latest data available at the time of data collection. The required data was drawn from annual reports officially available on a government website platform (GOV UK, 2017). The non-financial performance results were obtained from the Care Quality Commission (CQC) website (CQC, 2017). The population listed on GOV UK website (at the time of data collection) consisted of 155 NHS-FTs. However, Birmingham Women's and Children's NHS-FT and Essex Partnership University NHS-FT were both officially launched in early 2017, as such,

there was no data available for 2016. Similarly, Wirral Community NHS-FT was not authorized until 1st May, 2016, and Birmingham Community Healthcare NHS-FT until 1st April, 2016, therefore, their information could not be gathered. Mid Staffordshire NHS-FT got dissolved on 1st November, 2017, which had stopped providing services since 2014 (Mid Staffordshire NHS-FT, 2017). North West Anglia NHS-FT was Peterborough and Stamford Hospitals NHS-FT until April, 2017 (for which data was collected and used), hence, no data was available for this Trust either. Finally, Oxford University Hospitals NHS-FT was authorized in October, 2015, thus, data was incomplete, and hence, discarded. Therefore, the final number of FTs included in the current study was 148.

Variables Measurement

Independent Variables

To examine the impact of FTs governance characteristics on performance, the following board characteristics were included: the number of board meetings, attendance of board meetings, board size and independence, gender diversity, clinical representation, remuneration, board members' length of service, and board of directors' turnover. Following is a demonstration of operationalization of these variables.

Number of board meetings

The number of board meetings was collected for 146 Trusts, where it was not possible to find accurate data for 2 Trusts. The number of board meetings includes closed, extraordinary, and private meetings.

Attendance of board of directors meetings

This variable was calculated as a percentage by dividing the number of meetings that directors attended (total of all individuals) over the total number of available meetings (number of meetings held during the year multiplied by the number of individuals). The percentage was calculated for 142 out of 148 Trusts, as 6 Trusts were excluded because no record contained in the annual report and on the Trust's website, or it was not possible to calculate the attendance percentage due to data presentation.

Board size and independence

This variable was based on information as true at the end of the financial year (31st March, 2016); data was collected for all Trusts. The total figure excluded associate directors and board members who left during the year. All non-voting directors were included (where identified), as well as, all interim directors if they were still in the post at the end of March, 2016. The variable was split into four categories, these are: total number of members, number of Executive Directors (EDs), Number of Non-Executive Directors (NEDs), and Percentage of NEDs.

Gender diversity on the board of directors

This variable refers to female representation on the board; data was available for all FTs. This variable was split into the number of female members on the board, percentage of female members on the board, and CEO (whether female or not).

Clinical representation

This variable was drawn from board members description in the Trusts' annual reports, and related data was available for all FTs. This board characteristic was described as the total number of members with a clinical background (nursing and medical). This was further split into doctor numbers and nurse numbers along with recording the gender split for both categories.

Board remuneration

Board remuneration is normally presented in a tabular form in the Trusts' annual reports, data was available for all FTs. Basic and total salary were presented in bands of £5000 and as annual figures; if a member joined during the year the totals were calculated based on the number of months worked, and then, they were adjusted to an annual banding. The data extracted from the remuneration report was split into the following groups: CEO basic salary (excluding all benefits: taxable, non-taxable, performance, and pension related benefits), CEO salary as a percentage of the total income of the FT, band of highest paid director's total remuneration as stated in the annual report (including all benefits: taxable, non-taxable, and performance, however, not including pension related benefits), band of highest paid director's total remuneration as stated in the annual report (including all benefits: taxable, non-taxable, performance, and including pension related benefits), median remuneration of the workforce (given in the annual report), and ratio of the

highest paid director's annual total salary to the median of all staff salaries (as stated in the annual report).

Length of service of board members

Evidence of the length of service was presented in a descriptive form in the annual report. It was intended to collect the data for all board members. However, due to directors' turnover and ambiguous presentation in some annual reports, the data was unreliable. Nevertheless, it was possible to gather information on the length of service of CEO and Chairmen. The report normally included the start date (month and year), which enabled the calculation of the length of service in months until 31st March, 2016. Board members who resigned/retired prior to 31st March, 2016 were not included. For the purpose of the data analysis, this variable was split into two categories: chairman's length of service in months (this data was unobtainable for 16 FTs), and CEO's length of service in months (this data was unavailable for 19 FTs).

Board members turnover

To measure board members' turnover, the number of members who left during the financial year 2016 was collected, this included retired members, resigned members, and those in interim cover; this data was unobtainable for 7 FTs.

Dependent Variables

In this study, two dependent variables were applied in measuring hospitals' performance, these are: financial performance and non-financial performance. Financial performance was split into 5 variables, namely Total Operating Income, Operating Surplus/Deficit for the year, Overall Surplus/Deficit for the year, Total Comprehensive Income/Expense for the year, and the Overall Surplus/Deficit as a percentage of total operating income (this was performed to provide a fairer comparison between high and low income Trusts).

Regarding non-financial performance, the CQC audit reports of FTs (Total CQC score) were the reference, where five areas were assessed, namely Safe, Effective, Caring, Responsive, and Well-led. During CQC audits, each of these areas is awarded one of the following ratings: outstanding,

good, requires improvement, and inadequate or no rating (under appeal or suspended). For the purposes of the analysis, four of the relevant ratings were given subsequent weights, these are: Inadequate (0), Requires improvement (1), Good (2), and Outstanding (3). All the scores of the five assessment areas were added (scale 0–15), and the results represent the non-financial performance of the FTs.

Control Variables

Initially, control variables included hospitals within the Trusts with Emergency Department, hospital's size (defined by the total number of inpatient beds), and hospital's location (tertiary, district, or other). As previously described, due to the variations in the services provided by the Trusts, the data contained in many of the annual reports was inadequate to provide reliable and interpretable results, hence, these variables were discarded. Instead, the Trust's total operating income was used as a control variable.

Data Analysis

The stepwise multiple regression analysis was performed to assess the relationships between independent and dependent variables. As the number of the independent variables was large to run an initial combined multiple regression and given the small sample size, these variables were separated further into 3 specific groups, namely Board Characteristics, Remuneration, and Length of Service. Accordingly, a regression analysis was run individually for the 3 groups. After highlighting the most important variables, a combined regression analysis was performed including those variables. Table 1 presents the three groups and the independent variables included under each one.

Table 1 about here

Prior to running the regression analysis, the multicollinearity test was performed to extract similar independent variables and improve data reliability. Pearson correlation coefficient was implemented to examine multicollinearity; and variables with a correlation coefficient greater than

0.7 were removed from the model. Consequently, 7 variables were excluded, these are: remuneration ratio, board size, number of female directors, number of male doctors, number of female doctors, number of male nurse, and number of female nurse. Hence, after excluding the variables with high collinearity, 20 independent variables remained. Table 2, 3, and 4 present Pearson correlation coefficients for each group of the independent variables.

Table 2, 3, and 4 about here

Following is a discussion of the significant results of the individual regression analysis for each group of variables, followed by a discussion of the combined regression analysis results for the significant variables only.

Group 1 (Board Characteristics)

A positive significant association was recorded between both the *Number of doctors on the board* and the *Number of NEDs* and the *Total Operating Income*. It is interesting that the number of NEDs contributed to total operating income, as opposed to executive members. It is proposed that total operating income is a surrogate for size of the Trust. As such, the largest 50% of Trusts had a greater number of NEDs on their boards than the smallest 50% (mean is 7.12 versus 6.6); this could be due to the perceived benefits of NEDs described earlier. Additionally, they also had a higher number of doctors on the board (mean is 1.95 versus 1.69).

Number of Board Meetings was significantly and negatively associated with four dependent variables, namely *Operating Surplus/Deficit*, *Overall Surplus/Deficit*, *Total Comprehensive Income/Expense*, and *Overall Surplus/Deficit as a % of Total Operating Income*. This implies that organizations tend to meet less often if they are profitable and more frequent if they are going through financial or operational difficulties (Vafeas, 1999). In this study, four out of the five FTs that held the highest number of meetings (18-23) were facing financial pressures. Although these were not the only Trusts with poor financial outcomes, it could be argued that financial distress

impacted the number of meetings held by these Trusts. In contrast, the *% of meetings attendance* had a positive effect on overall profit; this means that a stable, diligent, and well-attended board appears to have a positive effect on profit.

Additionally, increasing clinician presence (*Number of Doctors*) on the board significantly improved *Total CQC Score*. While only one CQC area of assessment could be described as non-clinical (i.e. well-led), the remainder (caring, effective, responsive, and safe) are very much the remit of those with a clinical background. The fact that only doctor numbers were significant and not nurses is justified as there are fewer nurses on boards, making them less likely to achieve a positive statistical outcome in a regression model, rather than a lack of an effect. Table 5 presents the multiple regression results, for the significant variables only, for group 1 independent variables.

Table 5 about here

Group 2 (Remuneration)

CEO Salary, *Band of Highest Paid Director*, and *Median Salary of Workforce* had a significant positive association with the *Total Operating Income*. This implies that larger Trusts (by operating income) do indeed pay their CEOs more than smaller ones. However, when the CEO salary was calculated as a percentage of the total operating income, it was found that it had a significant negative impact on the *Total Operating Income*. It can be argued that in a public healthcare system, with strict remuneration policies, smaller Trusts with lower total operating income could be paying their CEOs too much, while larger Trusts should potentially be paying more. In the private sector, the converse is likely to be true.

Regarding the *Surplus/Deficit*, it is invariably different. The only significant variable that stands out as a predictor of “profit” or “loss” is the *Band of Highest Paid Director*; increasing this figure had a deleterious effect on profit. The same results were detected regarding the effect of the *Band of the Highest Paid Director* on the *Overall Surplus/Deficit*. Yet, the opposite was true for the *% of CEO Salary to Total Operating Income to Overall Surplus/Deficit*. The explanation for such

results may be twofold. First, if a Trust is facing financial difficulties, directors from the private sector may be brought who are more costly, but potentially superior in improving the financial situation of the Trust. The second reason may be related to the overall assessment of financial controls within a Trust; maintaining control of staff costs and especially of the higher earning doctors, may indicate a better financial governance overall.

When Surplus/Deficit reports were then calculated as a percentage of the total operating income, the *Band of Highest Director* still had a negative effect as before, and the *% of CEO Salary to Total Operating Income* became no longer significant. Interestingly, the increase in the *Median Salary of Workforce* was significantly associated with the increased profit, implying that increasing the workforce pay was financially beneficial, perhaps due to a more incentivized and skilled workforce. No remuneration variable was associated with the quality of service outcomes as determined by the *Total CQC Score*. Table 6 presents the multiple regression results, for the significant variables only, for group 2 independent variables.

Table 6 about here

Group 3 (Length of Service of Board Members)

Two variables were significantly and positively associated with *Total Operating Income*, namely the CEO employment duration in months (*CEO Months*) and the *Number of Directors Who Left During the Year*. Trusts with high income seem to have a longer-term CEO in place, which could be due to the better remuneration and career progression in these Trusts with low desire to leave the position. However, it is very unlikely that high directors' turnover leads to a high operating income, but more likely that larger Trusts with a high income have a higher turnover of directors. Indeed, for the twenty Trusts with 5 or more directors leaving, the average total income was £411.63 million, compared to the remaining Trusts' average of £302.29 million.

Notably, the number of directors leaving the Trust had a significant negative impact on *Operating Surplus/Deficit*, *Overall Surplus/Deficit*, and *Overall Surplus/Deficit as a % of Total Income*. It is likely that a Trust with a financial difficulty will try to bring about a turnaround in fortunes by changing staff on the board, but this has a significant consequence on the running of the Trust, and as recoded in this study, a deleterious effect on income.

CEO stability has a significant relationship with CQC quality outcomes; *CEO Length of Service* was highly and positively significant. This can be explained as a stable CEO position for a long time is more likely to positively contribute to non-financial healthcare outcomes by providing a stable platform for provision of quality services. Similarly, if a Trust is badly doing on CQC scoring, the CEO is most likely to be deemed ineffective and potentially be replaced. Table 7 presents the multiple regression results, for the significant variables only, for group 3 independent variables.

Table 7 about here

Effect of Combined Independent Variables in the Model

Based on the previous individual regression analysis of the 3 groups, independent variables with significant coefficients ($p < 0.1$) were selected for inclusion in a combined stepwise regression. Table 8 presents the independent variables that met this criterion.

Table 8 about here

In the combined model, the *Percentage of CEO Salary to Total Operating Income*, *CEO salary*, and *Number of Doctors* on the board were strongly associated with the *Total Operating Income*. The model for predicting the total operating income from these three variables was strong ($R^2=0.68$). The remuneration of the CEO was highly linked with the Trust's total income, probably

because larger Trusts pay their CEOs more. *Band of Highest paid Director*, *% of Meetings Attendance*, *Number of Meetings*, and *Number of Directors Left During the Year* were significantly associated with the *Overall Surplus/Deficit*. Interestingly, having a female CEO was significantly and negatively associated with the *Operating Surplus/Deficit*, but not with the *Overall Surplus/Deficit*.

The combined model produced a stronger R^2 value (0.338) than the previous modelling for the *Overall Surplus/Deficit*, indicating that combining these different variables is important. Interestingly, remuneration had a significant negative impact on *Overall Surplus/Deficit*, as one would expect that higher paid directors produce better financial results standing on the fact that in the private sector, remuneration is often directly linked with financial profit. Indeed, the results showed that paying directors more is associated with a fall in profit.

Additionally, *% of Meetings Attendance* is the only variable that was positively associated with the overall profit, while the *Number of Board Meetings* and *Board Instability* were negatively associated with profit. This implies that a stable board with a good attendance is the most efficient structure. The results of the *Overall Surplus/Deficit as a % of Total Income* are similar to the *Overall Surplus/Deficit* findings, except that none of the remuneration variables was significant. This could be explained as larger Trusts with higher overall (non-corrected) deficit are paying their top directors more than smaller ones, but when the overall deficit is being corrected for the Total Operating Income (surrogate for size of the Trust), top directors' salaries became no longer significant. A new variable presented in this model is the *% of NEDs*, which was significantly associated with the increased profit, this could be an indicator that NEDs might indeed improve financial performance, as advocated in literature (Mallin, 2012).

Stability of the board appears to be a very strong indicator of quality performance; both *CEO Length of Service* and *Number Left During the Year* were significantly associated with the *Total CQC score*. A poor CQC score can be seen as either a reaction to or as a cause of board volatility. Also, the importance of having a clinical input on the board to ensure quality is again highlighted. Table 9 presents the multiple regression results, for the significant variables only, for the combined analysis.

Table 9 about here

Discussion and Conclusions

The results of this study confirmed that hospitals' services effectiveness and profitability are related to how their boards of directors are structured. The results of the descriptive statistics demonstrated that the majority of Trusts were in financial deficit; however, the latter was contradictory with the high salaries recorded at these Trusts. Further, the majority of the CEOs did not stay in their positions for a long period where most of them left in less than 5 years. The results also showed that the number of female CEOs was 64 (43%) and the overall percentage of female directors was 42%. Although female representation is less than men's, it is considerably more than what is currently observed in other sectors. Therefore, it is a positive finding for public bodies, such as FTs to provide almost equitable positions for both males and females with a high percentage of female CEOs. However, this should obviously still be primarily based on managerial ability, as each gender handles their management tasks in different ways (see Rodríguez-Domínguez et al., 2012). In other words, examining the effect of female directors on the effectiveness of corporate governance mechanisms is more beneficial than exploring the effect of gender diversity on performance (Usman et al., 2018).

As well, our results showed that none of the dependent variables was positively associated with gender variation, and indeed, the operational profit was low for Trusts that have female CEOs. The implications of this are multi-factorial and not as simple as a binary male/female CEO in place, but does contradict with the previous evidence that highlighted the benefits of female directors.

Remuneration varied widely from a Trust to another, particularly remuneration of the highest paid director. Despite the existence of a guidance on remuneration, the results showed that the more the remuneration of the highest paid director the greater the loss. In the private sector, remuneration is often linked with profit and performance of the business; the converse may be true in not-for-profit organizations in the public sector. Specifically, directors with high salaries may hold

temporary positions when a Trust is in a precarious financial position attempting to rapidly improve profitability and turnaround performance. There must be an element of strong leadership and board financial control to limit the cost of highest paid directors, and thus, these Trusts may show better financial and non-financial performance.

CEO remuneration was less varied within Trusts and again this contradicts with what would normally be expected in the private sector where larger businesses would be more likely to pay their CEOs equivalently higher salaries. This is true in Trusts as the CEO's salary is positively related with Trust's size, but when the salary was calculated as a percentage of the operational income, it was noticed that smaller Trusts significantly pay their CEOs more. Hence, our findings suggest that CEO remuneration to be better linked with the size of the Trust, particularly in Trusts with high income. It can also be argued that these Trusts would have the ability to considerably pay their CEOs more than smaller Trusts. This might incentivize top CEOs from other industries to run these large Trusts and improve their performance. It may also incentivize CEOs from other smaller Trusts to perform at a high level to push themselves into these more competitive roles.

The lack of clinicians' existence on the board is very surprising considering the nature of the industry. Surely, more clinical expertise on the board would benefit Trusts' performance, especially, non-financial outcomes. In this work, the most significant associated independent variable with better CQC total score was the number of doctors on the board. This finding is supported by both the resource dependency and stakeholder theories where skilled clinicians participate in decision making for the benefit of the communities. Larger Trusts appeared to have recognized this more as they had more clinicians on their boards compared to smaller ones, but even then, the overall average of doctors on boards remains low (13.4%). Further, our results indicated that having more doctors on the board does not have a negative impact on financial outcomes. Hence, future NHS-FTs boards' structure could be more aligned to include more clinicians, particularly for Trusts with poorer CQC scores given the strong positive benefits that were previously highlighted.

Board meetings attendance and non-executive members on the board were strongly and positively associated with better financial outcomes, whereas, the number of meetings was negatively

associated with these outcomes. The latter implies that a well-run board and therefore, a Trust, will have a strict control over attendance, and the influence of non-executive members does indeed show to be positive. As previously noted, the number of board meetings is likely to increase as performance dips, while a well maintained successful board is unlikely to warrant unnecessary additional meetings.

Further, board stability was one of the strongest associated independent variables to both financial and non-financial outcomes. Better CQC scoring was significantly associated with CEO longer service in the position and less directors' turnover during the year. This could be explained by the managerialism theory, where the advantage is taken of longstanding directors with years of experience on the board. Also, profit fell as more directors were replaced during the year. It is obvious that failing Trusts are recommended to replace under-performing directors; hence, it would be interesting is to analyze the following years' performance to explore if this measure was beneficial for these Trusts in the longer term.

Based on the above discussion, one area of variance is the number of financial dependent variables analyzed. If one financial outcome variable is to be picked, the overall Surplus/Deficit as a percentage of operational income is the best, as dividing the overall surplus/deficit over the total operating income corrects the Trusts' size and provides a truer estimate of their financial performance. Focusing on this financial outcome variable, the number of directors who left during the year and the number of meetings had a significant negative impact on financial performance, while the percentage of meetings attendance and the percentage of NEDs had a positive impact on financial performance. Regarding the non-financial dependent variable (total CQC score), it was positively associated with CEO months and number of doctors on the board, whereas the number of directors who left during the year had a negative effect on CQC score.

Finally, it is indeed recommended that larger FTs could align their CEOs salaries with their size and income to improve competitiveness, or alternatively, smaller Trusts to pay their CEOs less. FTs are recommended to employ more clinicians, to scrutinize boards with a high rate of turnover or with poor attendance, and to ensure appropriate representation of NEDs. If any of these

initiatives was implemented, future research could assess how these changes might impact in future years' performance.

Limitations and Future Research

Standing on the fact that public healthcare organizations are supposed to provide efficient and constructive services to their beneficiaries, evaluating their performance is essential to ensure the best delivery of these services. Hence, future research is encouraged to examine the factors that affect the quality of services provided by these organizations to offer a better understanding of their strategic context. Further, research that employs different methodologies (e.g., qualitative validation of the suggested quantitative associations) could provide additional empirical evidence of the importance of evaluating and enhancing the non-financial performance of FTs. In this regards, CQC results could be explored in greater depth, particularly the individual reported outcomes, as this was not considered in the current work. As well, future work is encouraged to explore the subsequent development in the measuring ability of the CQC scoring of improving the performance of the Trusts.

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Table 1: Independent variables groups

Group1 (Board Characteristics)	Group 2 (Remuneration)	Group 3 (Length of Service)
<ul style="list-style-type: none"> • Number of Meetings • % Attendance at Meetings • Number of Executive Directors • Number of Non-Executive Directors • % of Non-Executive Directors on the Board • % of Females on the Board • CEO Female • Number of Clinicians on the Board (Nurse and Doctor) • Number of Doctors on the Board • Number of Nurses on the Board • % of Female Doctors on the Board • % of Female Nurses on the Board • Board Size • Number of Female Directors • Number of Male Doctors • Number of Female Doctors • Number of Male Nurse • Number of Female Nurse 	<ul style="list-style-type: none"> • CEO Salary • CEO Salary as % of Total Operating Income • Band of Highest Paid Director • Band of Highest Paid Director Including Pension Benefits • Median Salary of Workforce • Remuneration Ratio 	<ul style="list-style-type: none"> • CEO Length of Service (months) • Chairman Length of Service (months) • Number of Board Members Who Left During the Year

Table 2: Pearson correlation coefficients of the included variables (Group 1)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Opr. Inc	1.000												
2. No. of Meet.	0.107	1.000											
3. % of Atten	-0.165	-0.500	1.000										
4. Exe. Dirc.	0.184	-0.089	-0.065	1.000									
5. NEDs. + Chair	0.313	-0.039	-0.102	0.133	1.000								
6. % Non Exs	0.128	0.061	-0.034	-0.691	0.375	1.000							
7. Fem %	-0.090	0.058	0.013	0.008	-0.221	-0.116	1.000						
8. CEO Fem	-0.060	0.086	-0.026	-0.103	-0.211	-0.011	0.328	1.000					
9. No. of Dr +Nrse	0.277	-0.046	-0.195	0.213	0.158	0.023	0.117	0.117	1.000				
10. Dr. No	0.383	-0.026	-0.136	0.046	0.226	0.172	-0.122	-0.098	0.657	1.000			
11. %Dr. Female	0.014	-0.048	0.093	-0.008	-0.064	0.007	0.225	0.038	0.136	0.142	1.000		
12. Total Nurse	-0.081	-0.032	-0.095	0.232	-0.049	-0.169	0.282	0.260	0.564	-0.249	0.027	1.000	
13. Nurse % Female	0.109	0.090	-0.021	-0.131	-0.061	0.102	0.161	0.049	-0.027	0.012	-0.007	-0.051	1.000

Table 3: Pearson correlation coefficients of the included variables (Group 2)

	1	2	3	4	5	6
1. Operating Income	1.000					
2. CEO Salary	0.675	1.000				
3. % CEO Salary to income	-0.655	-0.395	1.000			
4. Band of highest paid director	0.492	0.597	-0.249	1.000		
5. Highest paid including pension benefits	0.169	0.210	-0.161	0.308	1.000	
6. Median Salary	0.218	0.212	-0.76	0.020	-0.051	1.000

Table 4: Pearson correlation coefficients of the included variables (Group 3)

	1	2	3	4
1. Operation Income	1.000			
2. Chair Mths	0.084	1.000		
3. CEO Mths	0.179	0.226	1.000	
4. Number Left During Year	0.170	-0.222	-0.349	1.000

Table 5: Multiple regression results- Group 1

Dependent Variable	Significant Independent Variables	P-value	R ²
Total Operating Income	Number of Doctors	<0.001	0.182
	Number of NEDs	0.002	
Operating Surplus/Deficit	Number of Meetings	0.02	0.038
Overall Surplus/Deficit	Number of Meetings	0.001	0.076
Total Comprehensive Income/ Expense	Number of Meetings	0.006	0.093
	Number of Doctors	0.010	
Overall Surplus/Deficit as a % of Total Operating Income	Number of Meetings	0.020	0.070
	% Attendance	0.040	
Total CQC Score	Number of Doctors	0.015	0.042

Table 6: Multiple regression results- Group 2

Dependent Variable	Significant Independent Variables	P-value	R ²
Total Operating Income	CEO Salary	<0.001	0.670
	% CEO Salary to Total Operating Income	<0.001	
	Band of Highest Paid Director	0.014	
	Median Salary of Workforce	0.037	
Operating Surplus/Deficit	Band of Highest Paid Director	<0.001	0.11
Overall Surplus/Deficit	Band of highest Paid Director	<0.001	0.525
	% CEO Salary to Total Operating Income	0.016	
Total Comprehensive Income/ Expense	Band of highest Paid Director	<0.001	0.245
	% CEO Salary to Total Operating Income	0.041	
Overall Surplus/Deficit as a % of Total Operating Income	Median Salary of Workforce	0.025	0.060
	Band of highest Paid Director	0.038	
Total CQC Score	None		

Table 7: Multiple regression results- Group 3

Dependent Variable	Significant Independent Variables	P-value	R ²
Total Operating Income	CEO Months	0.004	0.087
	Number Left During Year	0.007	
Operating Surplus/Deficit	Number Left During Year	<0.001	0.149
Overall Surplus/Deficit	Number Left During Year	<0.001	0.175
Total Comprehensive Income/ Expense	Number Left During Year	<0.001	0.107
Overall Surplus/Deficit as a % of Total Operating Income	Number Left During Year	0.002	0.082
Total CQC Score	CEO Months	0.002	0.81

Table 8: Independent variables with $p < 0.1$

Dependent variable	Significant independent variable
Total Operating Income	Band of Highest Paid Director
	CEO Salary
	Length of Service CEO (months)
	Median Income of Workforce
	Non-Executive Numbers on the Board
	Number of Board Members Who Left During the Year
	Number of Doctors on the Board
	Number of Meetings
	Percentage of CEO Salary to Total Operating Income
Operating Surplus/Deficit	Band of Highest Paid Director
	CEO Female
	Number of Directors Who Left During the Year
	Number of Meetings
	Total of Nurses on the Board
Overall Deficit/Surplus	Band of Highest Paid Director
	Median Salary
	Number of Directors Left During the Year
	Number of Meetings
	Percentage of Attendance of Directors
	Percentage of CEO Salary to Total Operating Income
Total Comprehensive Income/Expense	Number of Meetings
	Percentage of Attendance of Directors
	Band of Highest Director
	Number of Directors Left During the Year
	Number of Doctors on the Board
	Percentage of CEO Salary to Total Operating Income
Overall Surplus/Deficit as a % of Total Operating Income	Band of the Highest Paid Director
	CEO Female
	Median Salary of the Workforce
	Number of Executive Directors on the Board
	Number Left During the Year
	Number of Meetings
	Percentage of Attendance of Directors
	Percentage of Non-Executive Directors on Board
Total CQC Score	CEO length in Post (Months)
	Chair length in Post (Months)
	Number of Directors Left During the Year
	Number of Doctors on the Board

Table 9: Multiple regression results- Combined

Dependent Variable	Significant Independent Variables	P-value	R²
Total Operating Income	CEO Salary	<0.001	0.680
	% CEO Salary to Total Operating Income	<0.001	
	Number of Drs	0.001	
Operating Surplus/Deficit	Band of Highest Paid Directors	0.001	0.173
	Number Left During Year	0.028	
	CEO Female	0.029	
Overall Surplus/Deficit	Band of Highest Paid Directors	<0.001	0.338
	Number of Meetings	0.016	
	Number Left During Year	0.010	
	% Attendance	0.016	
Total Comprehensive Income/ Expense	Band of Highest Paid Directors	<0.001	0.254
	% Attendance	0.018	
Overall Surplus/Deficit as a % of Total Operating Income	Number Left During Year	0.005	0.145
	% Attendance	0.020	
	Number of Meetings	0.025	
	% NED	0.036	
Total CQC Score	CEO Months	0.015	0.153
	Number of Drs	0.012	
	Number Left During Year	0.040	