

Main Predictor(s) of Good Corporate Governance in National Government Departments: A Decision-tree Classification and Prediction Analyses

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Abstract

Purpose: Good public sector corporate governance leads to good management, stewardship of public wealth, public engagement, and ultimately, better outcomes for citizens. As South Africa has one of the worst Gini coefficients in the world, its public sector should effectively address the challenges of inequality, poverty, and unemployment. Yet, almost 30% of national and provincial government departments obtain unfavourable audit outcomes.

Methodology: Supporting the drive for clean audit outcomes that equate to good corporate governance, the research objective was to determine the predictors of national government departments' corporate governance success. The study used CHAID (chi-squared automatic interaction detection) analyses, a decision-tree technique based on information reported over a 13-year period.

Findings: The CHAID analyses indicated that national government departments' corporate governance success is primarily explained by three factors, namely: a quality internal audit function (main predictor), the number of fraud incidents, and the number of internal control weaknesses.

Implication: Even though all the variables in this study receive attention in literature and regulation, the problem of unfavourable audit outcomes persists. The question is where to focus on resolving the problem. Regulators may take note of where to focus their efforts in strengthening elements of good corporate governance.

Keywords: CHAID decision tree; audit outcome; fraud incidents; internal auditing; internal control; public sector

Introduction

According to one of the strongest public sector economies in the world, the Gulf States, good (corporate) governance also leads to good management, good stewardship of public wealth, good public engagement and, ultimately, better outcomes for service users (Wadie 2013). The contribution of this study is the surprising result that internal audit quality is the main predictor of good corporate governance, as opposed to other popular contenders, such as external auditing (Schäuble 2018), risk management (Subramaniam et al. 2013), and the audit committee (Olayinka, Adegboye, and Bamigboye 2022). The result is significant for regulators and oversight bodies as to where the effort to improve good corporate governance in national government departments should be focused.

Duh (2017) states that good corporate governance is the responsibility of every entity, assisted by legislation (hard law, i.e., mandatory) and corporate governance codes (soft law, i.e., voluntary), to provide a comprehensive corporate governance framework that encourages high governance standards and best practices in corporate governance systems. In South Africa and its public sector, in particular, the hard law applicable to this study is the Public Finance Management Act (PFMA), 1 of 1999 (SAG 1999) and the appropriate soft law is contained in the King Reports on Corporate Governance (IoDSA 1994; 2009; 2016), hereinafter referred to as the “statute” and the “code,” respectively.

The Auditor-General of South Africa (AGSA) is the supreme audit institution of the country. It is the only entity that, by law, must audit and report on how the national government departments are spending public funds (AGSA 2022a). Apart from the audit opinion on the fair representation of the financial statements, it also presents findings on compliance with the statute that requires the effective operation of the corporate governance elements (SAG 1999). As a result, for the purpose of this study, the audit outcome was deemed a fitting proxy for the success of corporate governance, similar to studies on the public sector (Bandiyono 2021) and private sector (Ballesta and García-Meca 2005).

Although several corporate governance elements originate from a need for oversight and control by the principal to mitigate perceived self-interest and demand accountability by management (agency theory), the authors wish to view the analysis in this article from a stewardship theory perspective. Franck and Sundgren (2012) suggest that there is a demand to develop theories related to the implementation of governance characteristics beyond the typical agency theory-based predictions. Stewardship theory professes that management shares the same goals as its stakeholders (Davis, Schoorman, and Donaldson 2007). The concept of stewardship focuses on interrelated attitudes, roles, and behaviours that public sector managers should endorse to aid their entities in adapting to good corporate governance requirements (Neethling 2022). According to Schillemans and Bjurström (2020), stewardship theory also analyses ways to ensure accountability when a task is delegated to management; however, it deviates from

agency theory in its view of factors motivating management. According to stewardship theory, management is assumed to be “motivated to act in the best interests of their principals” and they prioritise “pro-organisational, collectivistic behaviours” (Davis, Schoorman, and Donaldson 1997, 24). It would, thus, be in the interest of national government department stakeholders, and especially their management, to consider the results of this study in their pursuit of good corporate governance.

South African national government departments are funded by annual allocations from the national budget (National Treasury 2022). Since South Africa is ranked as the country with the highest level of income inequality in the world (World Population Review 2022), it is imperative that these departments execute their mandates efficiently and effectively to address the challenges of inequality, poverty, and unemployment. Yet, in its 2020/21 consolidated general report on national and provincial audit outcomes (AGSA 2022b), the AGSA reported that almost 30% of institutions obtained unfavourable audit outcomes, and less than 50% received financially unqualified audits (favourable outcome), but with findings on the corporate governance elements.

In support of the drive for increased clean audit outcomes (Mboto 2022) that equate to good corporate governance, this study aims to determine the predictors of national government departments’ corporate governance success. CHAID (chi-squared automatic interaction detection) analysis, a decision-tree technique, was used based on information reported over a 13-year period. The results indicate that a favourable audit outcome is primarily explained by three factors, with the main predictor being internal auditing. The rest of the paper comprises the contextualisation, literature review and hypotheses, the research methodology, the results and discussion, the limitation of the study, and the conclusion.

Contextualisation

This study focuses on national government departments in South Africa. Notwithstanding the periodic reconfiguration, the number of entities at the end of 2022 totalled 41 (SAG 2022). Following the global financial crisis of 2008, the South African economy did not recover at the same rate as the rest of the world (Rena and Msoni 2014), mainly owing to its internal struggles, which included the erosion of the capacity of critical state entities to enable an era of state capture (Martin and Solomon 2016), heavily impacting the stewardship theory values of common goals between public sector management and its stakeholders (Ries 2020). It is for this reason that the study’s period of analysis considered the years 2008 to 2021.

For the context of the South African audit outcomes, in its 2020/21 report on national and provincial audit outcomes, the AGSA (2022b) provided a summary of its list of audit outcomes, namely:

1. The ideal outcome is that of a clean audit (**financially unqualified opinion with no findings**).

2. A **financially unqualified opinion with findings**, with no material misstatements, but other material findings regarding compliance with laws or performance information that could compromise the auditees' accountability. For this study, the first two levels of outcomes were regarded as "favourable audit outcomes."
3. A **financially qualified opinion with findings**; either there are material misstatements in the financial statements, or the auditor could not determine that amounts are not materially misstated.
4. An **adverse opinion with findings**, with material misstatements being abundant.
5. A **disclaimed opinion with findings**, where the auditee cannot produce evidence to support the amounts in its financial statements. For this study, levels three to five were regarded as "unfavourable audit outcomes."

Literature Review and Hypotheses

The dependent variable, namely the audit outcome, was a proxy for the success of corporate governance, as discussed above. The independent variables that were used to measure the effect on the audit outcome included audit fees, internal control, fraud incidents, legislative compliance, internal audit function quality, risk management, and audit committees—all documented as potential predictors of sound corporate governance (IoDSA 2009; 2016; SAG 1999).

Regarding the link between audit fees and corporate governance, including the audit outcome, extensive research has been conducted in the private sector, such as the link between audit fees and audit committee effectiveness (Ali, Sing, and Al-Akram 2018), internal auditing (Alzeban and Sawan 2016), fraud (Lee and Ha 2021), risk management (Harymawan et al. 2021), and even political connections (Ahmad, Bradbury, and Habib 2022). For the public sector, very few recent studies could be identified. A study by Bradbury (2017) investigated the outsourcing of public sector audits to audit firms, and Axén et al. (2019) investigated the comparison of external audit firms' fees for municipalities and equivalent private sector organisations. However, it appears that studies on the link between audit outcomes and audit fees are limited. Chung and Wynn (2014) argue that, on the one hand, when external auditors cannot rely on the corporate governance principles that may ensure financial reporting quality, they may conduct additional work, resulting in higher audit fees and possibly also leading to a weaker audit outcome. On the other hand, they assert that when there are strong corporate governance principles in place, one of these elements may be the implementation of high-quality audit services to reduce the likelihood of fraudulent financial reporting, which may increase audit fees. Concerning the latter argument, higher audit fees may positively affect the audit outcome. These two arguments support the notion that the link between audit fees and audit outcomes may go both ways. The following hypothesis was formulated:

- H₁:** Higher audit fees as a percentage of the budget are a statistically significant predictor of a favourable audit outcome.

A sound internal control system is one of the pillars of good corporate governance (COSO 2019), with many studies conducted on the implementation and effect thereof. Bandiyono's (2021) study, conducted in the local government of a developing country, resulted in a positive, significant relationship between a sound internal control system and a positive audit outcome, whereas Feng (2020) reported the same results concerning non-profit organisations. However, the study by Pamungkas Ibtida, and Avrian (2018) that, similarly to this study, used the number of internal control deficiencies as a measure for weakness in a municipal internal control system, found no significant relationship between the two elements. With most studies based on a positivist paradigm, the study by Ncgobo and Malefane (2017)—using a case study method in a municipal environment—concluded that internal control weakness mainly stemmed from poor management performance (undermining the tenets of the stewardship theory), directly influencing the audit outcome, and leading to the following hypothesis:

H₂: A sound internal control system is a statistically significant predictor of a favourable audit outcome.

Closely linked to internal control weakness is the increase in the incidence of fraud and non-compliance with legislative requirements. First, when the internal control system is not functioning effectively, the possibility of fraud increases (Donelson, Ege, and McInnis 2017), whereas the implementation of fraud prevention programmes shows a significant decline in fraud incidents in the public sector (Kamaliah et al. 2018). Yet, as with internal control weaknesses, fraud within the public sector is also linked to management incompetence (Malau et al. 2021). Ismajli et al. (2019) found that the quality of external audits positively affects the detection of fraud and anomalies within financial statements, thus affecting the audit outcome. Investigating the link between fraud, internal control and audit outcome, a study by Dashtbayaz, Salehi, and Hedayatzadeh (2022) in the private sector concludes that the three elements are statistically significantly linked—sound internal control leads to less fraud and an improved audit outcome. A similar measurement, but for the public sector (Malau et al. 2021) suggested that there was an “overwhelming” confirmation of the link between the increase in fraud incidents and an unfavourable audit outcome, leading to the following hypothesis:

H₃: The curbing of fraud incidents is a statistically significant predictor of a favourable audit outcome.

The internal control system is also closely linked to compliance with legislative requirements and management's efforts to act in the interest of its stakeholders. Yaya et al. (2021) conclude that there is a direct link between non-compliance and a negative audit outcome in provincial departments in Indonesia. Yet, Pamungkas et al. (2018) conclude that for Indonesian municipalities, it is only when a financial loss is linked to non-compliance with legislation that the audit outcome may be negatively affected.

Hence, with limited studies on this topic and an inconclusive view, the following hypothesis was formulated:

H₄: Compliance with legislation is a statistically significant predictor of a favourable audit outcome.

Another element closely linked to internal control is internal auditing, with many studies investigating internal audit quality or effectiveness. Asare (2009), specifically investigating the link between internal auditing and good corporate governance in the public sector, did not include the effect on the audit outcome. However, it was concluded that a well-structured internal audit function, holding a strong mandate from management (this is in line with the tenets of the stewardship theory), can promote good corporate governance. In recent years, a similar qualitative study by Dzomira (2020), conducted in the South African public sector, supported the notion of an effective internal audit function; however, it concluded that, unfortunately, the internal audit functions under study were not effective, owing to elements outside of their control, such as an absence of management support. A quantitative analysis of the link between internal audit quality and the external audit outcome will enrich the current body of knowledge—leading to the following hypothesis:

H₅: A quality internal audit function is a statistically significant predictor of a favourable audit outcome.

Risk management within the governance landscape is a relatively young discipline; nevertheless, vast strides have been made toward the practice thereof. Recent studies within the private sector on the link between risk management and auditing reveal that the existence of a risk committee increases audit fees when a “Big 4” audit firm is involved (Bailey, Collins, and Abbott 2018) or when an independent audit committee is present (Larasati et al. 2019). Both studies suggest that this may be attributed to a demand for higher coverage that may improve sound corporate governance—potentially influencing the audit outcome. Yet, after a thorough investigation, no studies that link risk management and audit outcomes within the public sector could be identified. Risk management is being touted as an element of good corporate governance, and management has a responsibility to implement it to support the tenets of stewardship theory. The following hypothesis was formulated:

H₆: Quality risk management is a statistically significant predictor of a favourable audit outcome.

With the audit committee being the foundation of assurance-related activities within the corporate governance of an organisation (IoDSA 2016), most legislation or guidance documents link external auditing and audit committees. In the late 1990s, Abbott, Parker, and Peters (2004) investigated the effect of audit committee characteristics on the audit outcome, concluding that a mandatory minimum number of audit committee

members had a significant positive effect on the audit outcome. Furthermore, Raghunandan and Rama (2007, 265) assert that the number of audit committee meetings is the “only publicly available quantitative signal about the diligence of audit committees.” In a South African public sector context, Erasmus et al. (2021) conclude that there is a significant positive relationship between adherence to best practices by audit committees (including meeting at minimum twice per annum and having a minimum of three members) and a favourable audit outcome. Coetzee and Msiza (2018) determined that South African public sector audit committees were not on par with best practices, as stipulated by the third King Report (IoDSA 2009). Hence, the following hypotheses were formulated:

- H₇:** The number of audit committee *members* is a statistically significant predictor of a favourable audit outcome.
- H₈:** The number of audit committee *meetings* is a statistically significant predictor of a favourable audit outcome.

Based on the literature, the statute, and the code, a total of 10 independent variables were identified that may predict audit outcomes (dependent variable). These include continuous variables, namely, 1) external audit fees as a percentage of the entity’s budget; 2) incidents of fraud reported; 3) internal control quality measured by the number of internal control weaknesses reported; 4) the number of audit committee meetings per annum; 5) the number of audit committee members; and binary variables on, 6) legislative compliance (from external audit report); 7) internal audit quality (from audit committee report); 8) risk management strategy (existence of a strategy); 9) the risk management committee (existence of a committee); and 10) risk management quality (from audit committee report).

Methodology

Data

Data were gathered by means of analysing the annual reports of national government departments, from the 2008/09 financial year to that of 2020/21, incorporating the years comprising the state capture period. These documents were downloaded from departmental web pages or government websites. Table 1 indicates the categories used for each variable. The entire population of national government departments was targeted. Ultimately, data from 42 departments were considered, leading to a potential 546 annual reports over the 13-year period. As a result of unavailable annual reports, amalgamations and department splits, the actual number of annual reports analysed was 450. No audit outcome could be identified with respect to 10 cases, thus the total number used in the analysis amounted to 440 observations.

CHAID Analyses

The variables that statistically predict sound corporate governance of national government departments were determined using CHAID, one of the first predictive decision-tree data-mining methods (Kass 1980). This method has been used previously in the accounting sciences field (Cabero-Almenara et al. 2021), including in a South African context (Prinsloo, Müller, and Du Plessis 2010). CHAID builds non-binary trees by splitting the whole dataset—using either categorical and/or continuous data (Waara et al. 2015)—into homogenous subgroups based on the interaction between independent (predictor) variables and the dependent variable (Kass 1980). An advantage of CHAID is that it is a non-parametric technique, not requiring the assumption of normal distribution (Díaz-Pérez and Bethencourt-Cejas 2016).

CHAID consists of several steps, and at each step, the CHAID algorithm compares the independent variables and determines the best predictor for partitioning. Firstly, the most significant predictor partitions the entire dataset, following which the partitioned data are further split by the next most significant predicting independent variable, creating nodes after each split (Díaz-Pérez and Bethencourt-Cejas 2016). This process continues until no further statistically significant relationships are found between any of the independent variables and the dependent variable. The CHAID method is used for nominal or ordinal response variables in categorical data forms (Al Anshory et al. 2023). The minimum number of observations required for a node is 5% of total observations—if this criterion is not met, then no further splitting occurs. The first node is called a “root node,” which appears on top and includes the entire sample. The partitioned nodes are referred to as “parent nodes” if they are split into subgroups. If no more splitting occurs, then that group is labelled a “child node” or “terminal node.”

The first CHAID analysis used split-sample validation by splitting the sample into a training and test sample to build the decision tree (training data) and subsequently to test the accuracy thereof (testing data). No reclassification of variables was done, e.g., classifying fraud incidents into two groups, as the aim of the technique involves splitting the independent variables’ values according to the CHAID tree-building rules. For the CHAID analysis, the category “financially unqualified opinion with findings” was used as the target category. The cross-validation shows that, for the training sample (71% of cases) as well as the test sample (29% of cases), the trees were identical and correctly classified in 76.7% and 75.6% of the cases, respectively. The analysis was, therefore, considered robust. The analysis was then conducted on the full sample, displaying the same tree result with a 76.64% correct classification. Subsequently, potential outliers in the fraud incidence variable were removed to determine the effect on the CHAID analysis. The CHAID analysis was conducted where the outliers, identified as those above the 95 percentiles (which relates to fraud incidents of more than 172), were removed. In the next section, the two final CHAID decision trees (full sample and sample without fraud outliers) are presented and discussed.

Results and Discussion

The descriptive statistics of all the variables included in the analysis are presented in table 1 to provide an overview of the data. Thereafter, the CHAID models are depicted in figures 1 and 2, and the results are discussed. Note that the presentation of the descriptives of the data and the CHAID analysis are not linked.

Table 1: Descriptive statistics of the dependent and independent variables

Dependent variables in the study		Description	n	%
Audit outcome (Bandiyono 2021)	Favourable audit outcome	Financially unqualified opinion without findings (clean audit outcome)	0	
		Financially unqualified audit opinion with findings	336	76.4
	Unfavourable audit outcome	Financially qualified audit opinion with findings	99	22.5
		Adverse audit opinion with findings	0	
		Disclaimer of audit opinion with findings	5	1.1
Independent variables in the study		Description	n	%
1	External audit fees as a percentage of the budget (Chung and Wynn 2014)	Mean=0.005 (0.5%) Standard deviation=0.009 (0.9%)	N/A N/A	
2*	Sound internal control system (instances of internal control weaknesses detected by the AGSA) (SAG 1999: sec38(1)(a)(i) / IoDSA 2016:Pr 15)	No instances of weaknesses	127	28.8
		One instance of a weakness	25	5.7
		Two instances of weaknesses	42	9.5
		Three instances of weaknesses	60	13.6
		Four instances of weaknesses	54	12.2
		Five instances of weaknesses	35	7.9
		Six instances of weaknesses	38	8.6
		Seven instances of weaknesses	14	3.2
		Eight instances of weaknesses	19	4.3
		Nine instances of weaknesses	14	3.2
3*	Number of fraud incidents disclosed by department (SAG 2005:sec15.10.1.2(l); sec16A8.3(f); IoDSA 2016:Prs 3 and 15)	No fraud incidents	213	48.4
		One fraud incidence	32	7.3
		Two fraud incidents	21	4.8
		Three fraud incidents	28	6.4
		Four fraud incidents	11	2.5
		Five fraud incidents	10	2.3
4	Legislative compliance (SAG 1999:sec38(1)(n); IoDSA 2016:Pr 13)	Yes (no non-compliance was reported by AGSA)	184	41.8
		No (non-compliance was reported by AGSA)	255	58
5	Internal audit quality (SAG 1999:sec38(1)(a)(ii); IoDSA 2016:Pr 15)	Yes (audit committee satisfied with function)	315	71.6
		No (audit committee not satisfied with function)	125	28.4
6	Risk management strategy (SAG 2005:sec3.2.1; IoDSA 2016:Pr 4)	Yes (risk management strategy exists)	433	98.4
		No (no risk management strategy)	7	1.6
7	Risk management committee (SAG 1999: sec38(a)(i); IoDSA 2016:Pr 8(62))	Yes (committee exists)	318	72.3
		No (no committee)	122	27.7
8	Risk management quality (SAG 1999:sec 38(a)(i) ; IoDSA	Yes (audit committee satisfied with risk management implementation)	245	55.7

Table 1: Descriptive statistics of the dependent and independent variables

Dependent variables in the study		Description	n	%
2016:Pr 4)		No (audit committee not satisfied with risk management implementation)	194	44.1
9*	Number of audit committee meetings per annum** (SAG 1999:sec77(b); IoDSA 2016:Pr 8(58))	One meeting	4	0.9
		Two meetings	7	1.6
		Three meetings	22	5
		Four meetings	111	25.4
		Five meetings	103	23.6
		Six meetings	73	16.7
		Seven meetings	54	12.4
		Eight meetings	25	5.7
		Nine meetings	21	4.8
10*	Number of audit committee members*** (SAG 1999:sec77(a); IoDSA 2016:Pr 8(45))	Two members	3	0.7
		Three members	53	11.8
		Four members	103	22.9
		Five members	141	31.3
		Six members	73	16.2
		Seven members	28	6.2
		Eight members	17	3.8
		Nine members	14	3.1

(*) Remainder is above 10

(**) Maximum no of meetings=24 per annum

(***) Maximum number of members=13

Regarding the dependent variable, 76.4% of entities received a favourable audit outcome. The external audit fees, as a percentage of the budget, resulted in a mean of 0.005 and a standard deviation of 0.009. For the variables with nominal binary responses, with “yes” indicating the existence or compliance to these requirements, 71.6% of internal audit function quality, 98.4% of risk management strategy, and 72.3% of the existence of a risk management committee indicated a “yes”—thus a positive result. However, legislative compliance only indicated 41.8%, and risk management quality 55.7%, a positive result. For incidents of internal control weaknesses, a mean of 3.23 incidents (min 0 and max 14; StdDev 2.950) was reported. For the number of incidents of fraud, the mean was 29.14 incidents (min 0 and max 787; StdDev 88.365). The number of audit committee meetings per annum presented a mean of 5.64 meetings (min 1 and max 24; StdDev 2.246). The number of audit committee members presented a mean of 4.9818 members (min 1; max 13; StdDev 0.521).

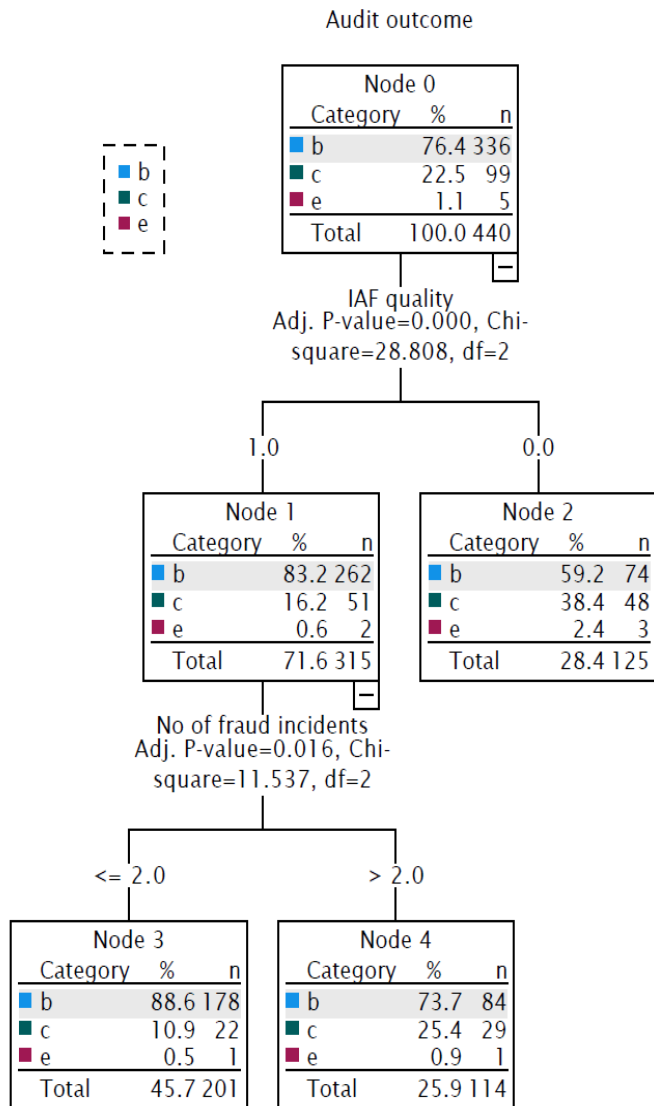


Figure 1: CHAID model that includes all observations

In this CHAID model, the analysis resulted in three terminal nodes. Only internal audit quality and incidents of fraud were found to be statistically significant predictors of audit outcome. The variable that had the most significant effect on the audit outcomes was “internal audit quality” (Chi-square=28.808; df=2, p=0.000). Node 1 represents the 315 departments with good internal audit function quality, with 83.2% (262) linked to

a favourable audit outcome (financially unqualified with findings). Only 16.2% (51) of the 315 departments had a financially qualified opinion with findings, and 0.6% (2) had a disclaimer of audit opinion. Node 2 is concerned with the 125 departments that held an impaired internal audit function quality, where the percentage for a favourable audit outcome lowered to 59.2% (74). Furthermore, a larger proportion of this group had an unfavourable audit outcome (38.4% had a financially qualified opinion with findings), and 2.4% (3) had a disclaimer of audit opinion.

The next independent variable that was a statistically significant predictor of audit outcome, where the entity had good internal audit function quality, was “incidents of fraud” (Chi-square 11.537; df=2, p=0.0016). Node 3 represents 201 entities, where two or fewer fraud incidents were reported, and 88.6% received a favourable audit outcome (financially unqualified with findings). Node 4 represents 114 entities, where more than two fraud incidents were reported, and the percentage of entities that received a favourable audit outcome decreased to 73.7% (84 entities), and the percentage for an unfavourable audit outcome was 25.4% (29) (financially qualified with findings) versus 10,9% (22).

Thus, in summary, the entities were classified into three groups. Group 1 (Node 2) related to 125 entities with an impaired internal audit function quality, with 74 receiving a favourable audit outcome. Group 2 (Node 3) related to 201 entities with good internal audit function quality and fewer than two fraud incidents reported, of which 178 received a favourable audit outcome. Lastly, group 3 (Node 4) related to 114 entities with good internal audit function quality; however, more than two fraud incidents were reported, of which 84 received a favourable audit outcome. Therefore, entities with good internal audit function quality and fewer than two fraud incidents best predicted a favourable audit outcome.

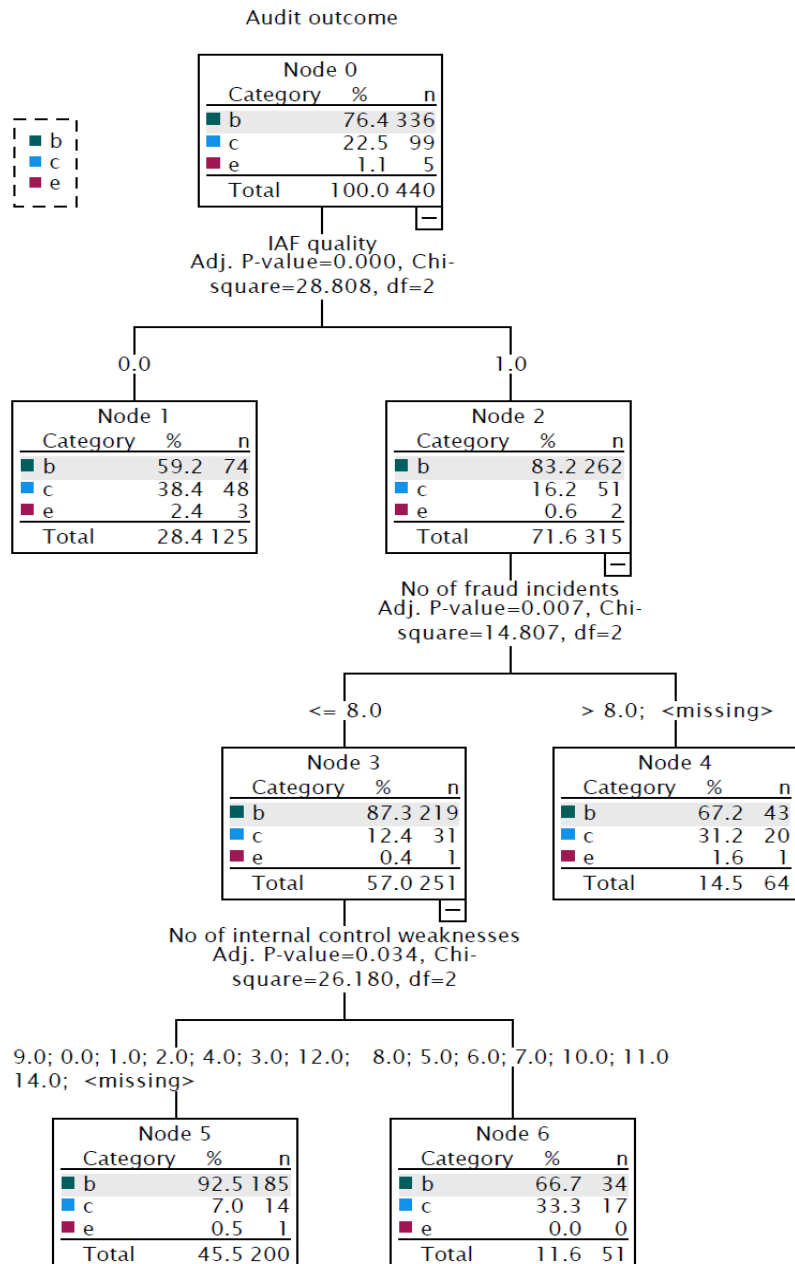


Figure 2: CHAID model excluding incidents of fraud outliers

After removing the “incidents of fraud” outliers at the 95 percentiles, the CHAID model revealed another statistically significant relationship (p -value 0.034; Chi-square=26.180; $df=2$) with the audit outcome, i.e., the number of internal control weaknesses. The CHAID model revealed a change in Nodes 3 and 4 to be split between less than or equal to eight, and more than eight incidents of fraud. However, for Node 5, where 92.5% of entities received a favourable audit outcome, a lower trend of internal control weaknesses could be observed. Regarding Node 6, entities (51) with favourable audit outcomes declined to 66.7% of the 51 entities, and entities with unfavourable audit outcomes increased to 33.3% of the entities. An increasing trend in the number of internal control weaknesses could be observed.

The CHAID analyses revealed that three of the eight hypotheses can be accepted, namely H_5 (internal audit quality), H_3 (incidents of fraud), and H_2 (sound internal control), from the most prominent predictor to the least. All other hypotheses were rejected.

Limitation

A limitation of the study was that the measurement of the elements was based on reports by the AGSA and audit committee and a more detailed analysis of some of the elements could have enhanced the dataset, such as the specific legislative compliance issues that may exist. Future studies may include similar analyses with respect to other spheres of government, state-owned companies, and the private sector.

Conclusion

The objective of this study was to determine the main predictors of good corporate governance for South African national government departments. To achieve this objective, the audit outcome was used as a proxy for the success of corporate governance and measured against the elements driving good corporate governance as identified in the literature, statute, and code. These elements underscore the tenets of stewardship theory, where management needs to improve the corporate governance system and processes in the interest of the public they serve.

CHAID analyses were conducted that rendered a model indicating internal audit function quality as the most prominent predictor of good corporate governance for national government departments—confirming the findings of previous studies that such a relationship does exist, yet enhancing the scholarly body of knowledge as being the main predictor. It is a noteworthy result, as other prominent corporate governance elements, such as external auditing, risk management, and audit committees, were trumped by the internal audit function. A second predictor of the level of audit outcome was the number of fraud incidents, which aligned with the quality of internal auditing as the main predictor—fewer incidents when there was a quality function. Again, the result of fewer fraud incidents being a main predictor compared to other elements, such as compliance with legislative requirements and the number of internal control

weaknesses, provides new evidence to the scholarly body of knowledge. After the “number of incidents of fraud” outliers were discarded, the CHAID model rendered a third predictor of the level of audit outcome, namely a sound internal control system (measured by the instances of internal control weaknesses)—fewer fraud incidents corresponded with fewer internal control weaknesses. The identification of the latter two predictors of audit outcome supports the study by Dashtbayaz et al. (2022) for the public sector.

Although other independent variables did not reveal statistically significant relationships with the audit outcome in the CHAID models, the descriptive statistics gave rise to interesting observations. The mean for external audit fees as a percentage of the budget was far below the norm found in international studies on the private sector when measured against total revenue (IFAC 2019)—possibly a reason for its insignificance as a predictor. A further observation concerned the poor legislative compliance result when the public sector operations were mandated by legislation. Also remarkable was the prevalent existence of risk management committees and risk management strategies that did not align with the quality of risk management results; thus denoting that legislative compliance had been satisfied without proper operational effectiveness.

Whereas researchers and other prominent stakeholders may regard external auditing as the most prominent element of good corporate governance (Raiborn et al. 2017), this study elevates internal auditing to that role. It is thus of importance that the internal audit function, which was regarded as impaired in almost 30% of the observations in this study, receives attention on various levels. Legislators may strengthen the independence and quality of the internal audit function by improving the treasury regulations. For example, explicitly mandating the audit committee with the appointment of the head of internal auditing (IIA 2023).

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