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*Full Length Research Paper*

# The COVID-19 and earnings management: China's evidence

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**This study investigated the relationship between the COVID-19 outbreak and the Chinese listed firms' earnings management practices. It also examined how this relationship was moderated by the Chinese listed firms' corporate social responsibility (CSR) and the external corporate governance mechanism. The data in this study were mainly retrieved from the China Stock Market and Accounting Research (CSMAR) database and the Chinese Research Data Services Platform (CNRDS). The final sample contained 2,029 A-share firms listed in the Shanghai and Shenzhen Stock Exchanges, which released financial reports during the pandemic in 2020. The study applied the performance-adjusted Jones and the modified Jones model to calculate accrual-based earnings. To estimate the real activity-based earnings, this study used the following three measurements: The absolute value of the abnormal cash flow from operations, the absolute value of the abnormal production costs, and the absolute value of the abnormal discretionary expenditures. The results of this study indicated an increase in accrual-based earnings management (AEM) and a significant decline in real activity-based earnings management (REM), in firms in the most severely affected regions. In these regions, both AEM and REM were less pronounced for the firms with a higher CSR performance than those with a lower CSR performance. Moreover, firms audited by the Big 10 auditors were less likely to manipulate earnings through AEM or REM.**

**Key words:** COVID-19, earnings management, corporate social responsibility (CSR), big 10 auditors.

## INTRODUCTION

The COVID-19 outbreak has exerted varied impacts on the financial market and firm financial performance (Ruiz et al., 2020). Given the scenario and firm behavior during financial crises, the firms are expected to manipulate their reported earnings to respond to the current negative market environment (Choi et al., 2011). The manipulation of earning or earnings management is divided into two streams-accrual-based earnings management (AEM) and

real activity-based earnings management (REM) (Graham et al., 2005; Kim et al., 2018). AEM occurs when managers manipulate the accrual component of earnings, while REM occurs when managers manipulate real activities, such as when they reduce expenditures on research and development, which directly impacts the cash flow of the firms (Cimini, 2015).

The research on earnings management has focused on

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AEM and REM, given that earnings are the sum of accruals and operating cash flows. The empirical research has shown substantial evidence that firms manage earnings by manipulating various operational, investment, financial activities (Xu et al., 2007) and discretionary expenditures (Roychowdhury, 2006). For instance, Baber and Fairfield (1991) and Roychowdhury (2006) have investigated the manipulation of operational and investment activities, particularly the manipulation of discretionary expenditures. Studies have also examined firms' manipulation of production, inventory, and sales to smooth earnings and meet earnings targets (Dhaliwal et al., 1994; Roychowdhury, 2006). In this regard, studies have found that firms can use the income from the sales of long-term assets to smooth earnings and achieve earnings forecasts (Bartov, 1993; Herrmann et al., 2003). Earnings management also occurs when managers use judgments in financial reporting (Healy and Wahlen, 1999). Dye (2002) defines such structuring of transactions as "classification manipulation." Mittelstaedt et al. (1995), Comiskey and Mulford (1986), Imhoff and Thomas (1988), and Ayers et al. (2002) are some studies that have examined earnings management by structuring operational and investment transactions.

Earnings manipulation through financial activities has been examined in regard to stock repurchases (Bens et al., 2003; Hribar et al., 2006), the relationship between earnings management and the use of stock options in the compensation package (Matsunaga, 1995; Kimbrough and Louis, 2004; Carter et al., 2006), and financial instruments (Hand et al., 1990; Barton, 2001; Pincus and Rajgopal, 2002), among others. Additionally, Marquardt and Wiedman (2005) have provided evidence on how firms engage in earnings management by structuring financial transactions.

The study contributes to the literature in the following perspectives. First, despite the growing literature on market and firm reactions to the COVID-19 (Ding et al., 2020; Ruiz et al., 2020), this is among the first studies to examine Chinese listed firms' earnings management practices in the context of the ongoing pandemic. Second, the empirical evidence provides inconclusive and contradictory views on the relationship between CSR and earnings management (EM) (Prior et al., 2008). There is insufficient and limited research on the CSR-EM relationship in China (Islam et al., 2015; Kim et al., 2018). The current study extends prior research by re-examining the CSR-EM relationship in China, during the pandemic crisis. Third, it adds insights to the literature by examining how the relationship between the COVID-19 and the Chinese listed firms' earnings management practices is moderated by the CSR and the external corporate governance mechanism (auditing by the Big 10 audit firms) (DeFond and Subramanyam, 1998). Finally, this study helps Chinese authorities and listed firms better understand the earnings management and CSR practices influencing the quality of financial reporting in the current

scenario.

## LITERATURE REVIEW AND RESEARCH HYPOTHESES

Several studies have examined the managerial manipulation of earnings (Healy, 1985; DeFond and Jiambalvo, 1994; Subramanyam, 1996; Fields et al., 2001). For instance, Bartov et al. (2001) examined the relationship between discretionary accruals and audit qualifications and found a positive relationship between audit qualifications and abnormal accruals. In the context of financially distressed firms, Dimitropoulos and Asteriou (2010) investigated the influence of corporate governance mechanisms on managers' behaviour and the accounting policies.

In the case of China, Chen et al. (2010) discovered that financially distressed companies adopt earnings management techniques to avoid the monitoring by the government. In the context of the European Union (EU), Dimitras et al. (2015)'s study on the relationship between the financial crisis and earnings management indicated that financially distressed companies audited by a Big 4 auditor exhibit lower discretionary accruals. Similarly, Cimini (2015) concluded that, during a financial crisis, an increase in conditional conservatism enhances the earnings quality and impairs earnings management. During such crises, the stringent monitoring of auditors contributed toward reducing earnings management, and thereby improved the quality of financial reporting.

According to Kim et al. (2018), managers can manipulate reported earnings through AEM and REM. While AEM occurs before the announcement of financial statements to inflate (or deflate) reported earnings, REM occurs throughout the financial year because it requires changes to the firm's operations (Zang, 2012). Hence, REM is costlier than that of AEM. However, AEM is subject to greater scrutiny from external auditors or regulators, and hence AEM is more easily detectable than REM (Kim et al., 2018). The adoption of AEM and REM is also determined by the current pandemic scenario. The COVID-19 has significantly affected Chinese listed firms' economic activities. Given that REM focuses on manipulating cash flows through operational, investment, and financial activities throughout the financial year, REM is more difficult to conduct than that of AEM in the most severely affected regions. Hence, the first hypothesis is as follows:

**H1:** *During the COVID-19 outbreak, the listed firms in the most severely affected regions are more likely to engage in manipulating accrual-based earnings than real activity-based earnings.*

Concerning CSR and EM, there is inconclusive and mixed empirical evidence on the relationship between

CSR and earnings management. While Scholtens and Kang (2013), Kim et al. (2012), Bozzolan et al. (2015), and Martinez-Ferrero et al. (2015) found a negative relationship between CSR and EM practices, Prior et al. (2008) documented a positive relationship, indicating management opportunistic behaviour. However, other studies have shown mixed results, indicating that the CSR-EM relationship can be moderated by various institutional factors (Chih et al., 2008; Yip et al., 2011; Choi et al., 2013).

Early studies on the relationship between CSR and EM have mainly focused on AEM (Prior et al., 2008). For instance, Kim et al. (2012) found a negative relationship between CSR and both AEM and REM-high CSR engagement reduces both AEM and REM. Lim and Choi (2013) asserted that firms with good CSR activities constrain REM, focusing on the effect of the ethical implication of CSR on financial reporting. Bozzolan et al. (2015) reported that enhanced CSR is likely to discourage REM but encourage AEM because REM undermines firms' long-term value. Conversely, Cohen et al. (2008) and Ewert and Wagenhofer (2005) argued that enhanced CSR may discourage AEM but encourage REM because the probability of detecting AEM will increase as Chinese firms provide more operational information in their CSR disclosure.

Kim et al. (2018) discovered that Chinese firms' enhanced CSR decreases their EM practices. Conversely, SOEs and firms operating in more institutionally developed regions are more likely to engage in REM, while increasing their CSR activities. Therefore, listed firms with enhanced CSR are less likely to engage in earnings management practices through both AEM and REM; thus the second hypothesis as follows:

**H2:** *During the COVID-19 outbreak, listed firms in the most severely affected regions are less likely to manipulate their earnings through both AEM and REM when increasing their CSR activities.*

Concerning audit quality, the literature documents varied audit quality between the Big 6 and non-Big 6 audit firms (DeAngelo, 1981). In line with the study by DeAngelo (1981) and Craswell et al. (1995) found the significant premiums earned by the Big 6 audit firms over the non-Big 6 auditing firms to be consistent with the differentiation in the audit quality. A large clientele base and reputed brand name are incentives for the Big 6 auditing firms to detect and constrain earnings management of their clients (MacDonald, 1997). Geiger

$$\frac{Accruals_t}{A_t} = \alpha_0 \left( \frac{1}{A_{t-1}} \right) + \alpha_1 \left( \frac{\Delta Sales_t}{A_{t-1}} \right) + \alpha_2 \left( \frac{PPE_t}{A_{t-1}} \right) + \alpha_3 ROA_t + \varepsilon_t \quad (1)$$

where *Accruals* = total accruals defined as the change in the non-cash current assets minus the change in the current liabilities excluding the current portion of long-term debt minus depreciation

and Rama (2006) and Francis and Yu (2009) found that the Big 4 auditors provide higher quality than that of the non-Big 4 auditors. Contrarily, using the Korean data, Jeong and Rho (2004) concluded that there is no difference in audit quality between the Big 6 and non-Big 6 auditors.

Studies on the relationship between the Big 6 auditing firms and accruals have also revealed conservative auditor behaviors (DeFond and Subramanyam, 1998; Francis and Krishnan, 1999). For example, Becker et al. (1998) found evidence of more conservatism in the discretionary accruals of the clients of the Big 6 than those of the non-Big 6 audit firms. Francis and Wang's (2008) worldwide research on the audit quality provided by the Big 4 auditors between 1994 and 2004 showed that the Big 4 auditors provide higher earnings quality and ensure stringent investor protection. Concerning the financial crises, Butler et al. (2004) and Johl et al. (2007) concluded that auditors play an important role in ensuring high quality in financial reports, especially during the crisis periods. For instance, DeAngelo et al. (1994) concluded that managers' choices to manage earnings reflect their recognition of the financial difficulties of their companies to avoid a violent discovery of losses. Further, according to Chia et al. (2007), the Big 4 auditing companies contribute toward reducing earnings management, especially during the financial crisis.

In China, since the Big 10 audit firms have greater incentives to protect their integrity and reputation when conducting an audit on listed companies, they maintain a higher audit quality than that of the non-Big 10 audit firms (Chen et al., 2010). Therefore, the Big 10 audit firms take a more conservative approach when auditing listed companies' financial reports in this pandemic scenario. Thus, the following hypothesis is developed:

**H3:** *During the COVID-19 outbreak, listed firms audited by the Big 10 auditors are less likely to engage in earnings manipulation through AEM or REM.*

## METHODOLOGY

### Measurement of earnings management

Based on Kothari et al. (2005) and Kim et al. (2018), the current study used both the performance-adjusted Jones and modified Jones models to calculate the discretionary accruals. According to these models, a firm's total accruals decompose into non-discretionary and discretionary accruals. Specifically, discretionary accruals were estimated by adopting the cross-sectional modified Jones model adjusted for performance.

The non-discretionary accruals were estimated as follows:

and amortization; *A* = the total asset of the firms;  $\Delta Sales$  = the change in sales;  $\Delta AR$  = the changes in net receivables; *PPE* = the property, plant, and equipment; and *ROA* = the net income divided

by the lagged total assets.

Thus, the discretionary accruals were converted into absolute values considered as a proxy for AEM. A higher AEM indicates that firms engage in a higher level of EM through discretionary accruals.

The study also applied the modified Jones model (MAEM) to

$$\frac{\text{Accruals}_t}{A_t} = \alpha_0 \left( \frac{1}{A_{t-1}} \right) + \alpha_1 \left( \frac{\Delta \text{Sales}_t - \Delta \text{AR}_t}{A_{t-1}} \right) + \alpha_2 \left( \frac{\text{PPE}_t}{A_{t-1}} \right) + \alpha_3 \text{ROA}_t + \varepsilon_t \quad (2)$$

Since a firm can also manipulate its earnings through its operations (Roychowdhury, 2006), the study estimated REM through the following three REM measurements: the absolute value of the abnormal cash flow from operations ( $\text{CFO}_t$ ), the absolute value of the abnormal production costs ( $\text{PC}_t$ ), and the absolute value of the abnormal discretionary expenditures ( $\text{ADE}_t$ ), consistent with Kuo et al. (2014) and Bozzolan et al. (2015). The estimations of  $\text{CFO}_t$ ,  $\text{PC}_t$ , and  $\text{ADE}_t$  are detailed in Appendix I.

To estimate REM, we applied the following equation suggested by Kim et al. (2018):

$$\text{REM}_t = -\alpha_0 \text{CFO}_t + \alpha_0 \text{PC}_t - \alpha_0 \text{ADE}_t + \varepsilon_t \quad (3)$$

Consistent with Kim et al. (2018), the study developed an aggregate proxy by multiplying -1 for CFO (cash flow from operations) and ADE (abnormal discretionary expenditures) in Equation 4. A high REM indicates that listed firms engage in a higher level of EM through operational changes.

### Empirical studies

To assess the impact of the regional pandemic severity on firm's earnings management practices, the study applied the following regression models to test the hypotheses:

$$\begin{aligned} \text{EM}_i = & \beta_0 + \beta_1 \text{Mortality}_i + \beta_2 \text{Corporate\_governance}_i \\ & + \beta_3 (\text{Mortality}_i \times \text{Corporate\_governance}_i) + \text{Control}_i + \mu_i \\ & + \varepsilon_i \end{aligned} \quad (5)$$

moderation of the CSR performance or the Big 10 auditors on firm's earnings management. All control variables in model 5 are consistent with the control variables defined in model 4.

### Descriptive statistics

Data were mainly retrieved from the following two sources. First, the pandemic data, as a proxy of the relative provincial pandemic severity, from the China Stock Market & Accounting Research (CSMAR) database scaling the number of provincial COVID-19 deaths by the total number of casualties in China by May 31, 2020. The pandemic death proportion of an average province is around 2.15%. The data on the stock returns and firm characteristics were also gathered from the CSMAR database. Second, CSR scores were obtained from the Chinese Research Data Services Platform (CNRDS), which includes 819 firms' CSR performances in 2019. The major sample contains 2,029 A-share firms listed in the Shanghai and Shenzhen Stock Exchanges, which released financial reports during the pandemic in 2020. The AEM, modified AEM, and REM have the following means: 0.0109, 0.0110, and 0.0253, respectively. The average CSR score of the sampled firms is 6.591, and 53.327% of the sampled firms engage with Big 10

auditors. Table 2 lists the summary statistics of all the key variables.

$$\text{EM}_i = \beta_0 + \beta_1 \text{Mortality}_i + \text{Control}_i + \mu_i + \varepsilon_i \quad (4)$$

where  $\text{EM}_i$  indicates earnings management practices of the firm  $i$ , which includes two proxies-AEM and REM.  $\text{Mortality}_i$  indicates the number of provincial COVID-19 deaths scaled by the total number of casualties in China. Consistent with the literature (Kim et al., 2018), the study added the firm's one-year lagged control variables including the firm age, leverage ratio, book-to-market ratio, institutional shareholding percentages, Big 10 shareholder's ownership percentages, independent director percentages, Big 10 auditors, audit fee, cash flow growth rate, sales growth rate, ROE, Tobin's Q, and the natural logarithm of firm size. The study controlled the province-level characteristic by adding the legal environment index in our model suggested by Wang et al. (2017). The detailed definitions of variables are shown in Table 1. It also included the industry fixed effect  $\mu_i$  and cluster the standard error at the industry level to account for the arbitrary serial correlation among industries.

The study also considered the heterogeneous impact of the regional pandemic severity and various firm characteristics on firms' earnings management practices. This was achieved by inserting the firm corporate governance features into the following model: where  $\text{Corporate\_governance}_i$  indicates two measurements-the CSR scores and the Big 10 auditors from the lagged year. In regions with varied pandemic severities, the coefficient of interest- $\beta_3$ -shows the

auditors. Table 2 lists the summary statistics of all the key variables.

### MAIN RESULTS

The main regression results are presented in Table 3. Columns 1 and 2 of Table 3 show that firms in the most severely affected regions increased their discretionary accruals by 34.1% (AEM) and 37.6% (MAEM), which were calculated by applying the Jones and Modified Jones models, respectively. However, in these regions, the REM experienced a statistically significant decline, as shown in Column 3. Quantitatively, a 1% increase in the proportion of pandemic deaths would decrease the REM by 1%. The finding is consistent with our *Hypothesis 1* that the COVID-19 outbreak has exerted varied impacts on the earnings management practices of firms in the most severely affected regions (Dimitras et al., 2015). These results indicate that firms engage in manipulating their accrual-based earnings by inflating their reported

**Table 1.** Variable's definitions.

Variable	Definitions
<i>AEM</i>	Performance-adjusted Discretionary Accruals based on Jones Model (Kothari et al., 2005)
<i>MAEM</i>	Performance-adjusted Discretionary Accruals based on Modified Jones Model (Kothari et al., 2005)
<i>REM</i>	Real activity-based earnings management
<i>AEM_Choi</i>	Performance-adjusted Discretionary Accruals based on Modified Jones Model (Choi et al., 2011)
<i>MAEM_Choi</i>	Performance-adjusted Discretionary Accruals based on Modified Jones Model (Choi et al., 2011)
<i>Spread_3</i>	The firm's bid-ask spread over event window [0, 3], as in Corwin and Schultz (2012)
<i>Spread_30</i>	The firm's bid-ask spread over event window [0, 30], as in Corwin and Schultz (2012)
<i>CSR</i>	The firm's CSR scores from the CNRDS
<i>Big 10</i>	A dummy variable that equals to one if the firm's auditor is a big ten auditing firm and zero otherwise
<i>CFO</i>	Operating cash flows divided by lagged total assets
<i>Sales growth</i>	Net sales growth rate
<i>Cash growth</i>	Cash flow growth rate
<i>Leverage</i>	The firm's total debt versus total asset
<i>Book-to-Market ratio</i>	The firm's book value to its market value
<i>Firm Size</i>	The natural logarithm of the firm's total asset
<i>Tobin Q</i>	The ratio between a firm's physical asset's market value and its replacement value
<i>ROA</i>	The firm's net income versus total asset
<i>Age</i>	No. of years since the establishment of the firm
<i>Board size</i>	Size of the board of the firm
<i>Top 10 ownership</i>	The firm's largest ten shareholders' ownership percentage
<i>Institutional ownership</i>	The firm's institutional investor share percentage
<i>IND</i>	The no. of independent directors divided by the total number of directors
<i>Audit fee</i>	The natural logarithm of annual audit fees that firms paid
<i>Mortality</i>	No. of the provincial COVID-19 mortality scaled by the total death in China by May 31st, 2020.
<i>Confirmed</i>	No. of the provincial COVID-19 confirm cases scaled by the total confirm cases in China by May 31st, 2020
<i>Legal environment</i>	Legal environment index of a province

earnings right before the announcement of the financial statements. Since the outbreak of COVID-19 was an unexpected event, the managers may have manipulated their firms' earnings using AEM instead of REM, given that that REM requires managers to manipulate the operational, financial, and investment activities throughout the financial year. Furthermore, the outbreak of COVID-19 has severely affected the economy, and hence the manipulation of cash flows through operational, financial, and investment activities in the most severely affected regions became more difficult and expensive and easily detectable.

Table 4 exhibits the empirical results of two moderating factors-CSR and external Big 10 auditors. Columns 1 to 3 show that, in the most severely affected regions, the earnings management practices (e.g., AEM and REM) are less pronounced for the firms with a higher CSR performance, as measured by the CSR scores. This finding is consistent with *Hypothesis 2*, which highlights the influence of CSR on earnings management manipulation. It is also supported by the finding that firms with a higher CSR performance are less likely to manipulate earnings through both AEM and REM (Kim et

al., 2018). Columns 4 to 6 of Table 4 suggest that firms audited by the Big 10 auditors in the previous year are less likely to engage in manipulating earnings through either AEM or REM, which confirms *Hypothesis 3*. The findings of the current study are in line with the research conducted by Becker et al. (1998), who found similar evidence of a higher accounting conservatism of the Big 10 auditing firms than that of the non-Big 10 auditing firms. They argue that the Big 10 auditing firms have greater incentives to protect their integrity and reputation against any threat of litigations when auditing listed companies.

### Robustness check

#### *Alternative proxy for earnings management and pandemic severities*

To confirm whether the results are robust, the study adopted the alternative proxies for measuring accrual-based earnings management, consistent with Kim et al. (2018). Thus, it estimated accruals by calculating the

**Table 2.** Summary statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
AEM	2,029	0.109	0.448	0	13.634
MAEM	2,029	0.110	0.475	0	15.120
AEM_CHOI	2,029	0.092	0.574	0	17.393
MAEM_CHOI	2,029	0.092	0.625	0	19.680
REM	2,029	-0.025	0.056	-0.738	0.473
Spread_3	2,029	0.002	0.009	-0.025	0.063
Spread_30	2,029	0.003	0.004	-0.012	0.027
Mortality	2,029	0.018	.128	0	0.972
Confirmed	2,029	0.024	.106	0	0.809
Leverage	2,029	0.440	.241	0.014	5.681
Book-to-Market Ratio	2,029	1.429	1.788	0.024	19.322
Sales growth	2,029	-7.300	43.260	-1510.222	0.039
institutional ownership	2,029	0.449	.244	0	0.974
IND	2,029	0.379	0.058	0.250	0.800
Big 10	2,029	0.533	0.499	0	1.000
Top 10 ownership	2,029	0.597	0.155	0	0.972
Firm Size	2,029	22.524	1.441	17.954	28.636
Age	2,029	3.000	.291	1.574	4.122
Cash growth	2,029	-0.157	.658	-13.122	0.917
Tobin's Q	2,029	1.870	1.854	0.692	41.971
ROA	2,029	0.033	0.228	-7.700	4.707
Audit fee	2,029	14.030	0.710	12.206	18.240
Legal environment	2,029	8.738	4.383	0.448	14.854
CSR	819	6.591	2.508	0	11.000

**Table 3.** The impact of regional pandemic severity on firms' earnings management.

Variable	(1)	(2)	(3)
	AEM	MAEM	REM
Mortality	0.341*** (0.022)	0.376*** (0.024)	-0.01** (0.004)
Leverage	0.092** (0.037)	0.115*** (0.031)	0.053*** (0.004)
Book-to-Market ratio	-0.008 (0.006)	-0.008 (0.007)	0.002 (0.001)
Sales growth	0.001 (0.000)	0.000 (0.001)	0.001** (0.000)
Institutional ownership	0.050* (0.025)	0.052* (0.028)	0.021* (0.008)
IND	0.110 (0.129)	0.105 (0.136)	-0.010 (0.040)
Big 10	-0.001 (0.016)	0.001 (0.017)	-0.001 (0.003)
Top 10 ownership	-0.134** (0.052)	-0.140** (0.058)	-0.043*** (0.008)
Firm Size	-0.102*** (0.020)	-0.104*** (0.022)	-0.004* (0.002)
Age	0.034 (0.023)	0.035 (0.024)	0.008 (0.005)
Cash growth	-0.024 (0.035)	-0.033 (0.040)	-0.018** (0.006)
Tobin Q	0.067** (0.030)	0.076** (0.034)	-0.006** (0.002)
ROA	0.131*** (0.033)	0.149*** (0.028)	-0.040** (0.011)
Audit fee	0.059** (0.028)	0.057* (0.028)	0.000 (0.000)
Legal environment	-0.002 (0.001)	-0.002 (0.002)	-0.000 (0.001)
Industry FE	Yes	Yes	Yes
Observations	2,029	2,029	2029
R-squared	0.239	0.245	0.134

Industry fixed effects are included in all estimations. Standard errors, clustered at the industry level, are shown in brackets. The detailed definitions of variables are in Table 1. \*, \*\*, and \*\*\* denote significance at the 10, 5 and 1% level, respectively.

**Table 4.** The impact of CSR performance and Big 10 auditor on firms' earnings management.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	AEM	MAEM	REM	AEM	MAEM	REM
Mortality×CSR	-0.010*** (0.002)	-0.010*** (0.003)	-0.047*** (0.007)	- -	- -	- -
Mortality×Big 10	- -	- -	- -	-0.545*** (0.028)	-0.623*** (0.030)	-0.014*** (0.004)
Leverage	0.113*** (0.032)	0.089*** (0.027)	-0.029 (0.018)	0.091** (0.037)	0.113*** (0.030)	-0.029 (0.004)
Book-to-Market ratio	0.001 (0.003)	-0.000 (0.003)	0.003** (0.002)	-0.008 (0.006)	-0.009 (0.007)	0.003* (0.002)
Sales growth	0.000 (0.000)	-0.001 (0.001)	-0.001** (0.000)	0.001 (0.000)	0.000 (0.001)	-0.001** (0.000)
Institutional ownership	-0.026 (0.026)	-0.005 (0.023)	0.014* (0.008)	0.043 (0.025)	0.043 (0.028)	0.014* (0.007)
IND	-0.012 (0.045)	0.019 (0.050)	-0.003 (0.027)	0.094 (0.128)	0.087 (0.135)	-0.005 (0.026)
Top 10 ownership	-0.012 (0.034)	-0.005 (0.036)	-0.027** (0.013)	-0.108** (0.041)	-0.110** (0.043)	-0.027** (0.013)
Firm Size	-0.041*** (0.006)	-0.038*** (0.006)	-0.002 (0.003)	-0.101*** (0.020)	-0.103*** (0.022)	-0.001 (0.003)
Age	0.017 (0.011)	0.014 (0.011)	0.004 (0.004)	0.035 (0.023)	0.036 (0.025)	0.005 (0.004)
Cash growth	0.006 (0.005)	0.001 (0.007)	-0.017*** (0.006)	-0.022 (0.033)	-0.031 (0.038)	-0.017*** (0.006)
Tobin's Q	0.049*** (0.016)	0.044*** (0.012)	-0.005*** (0.001)	0.067** (0.030)	0.075** (0.034)	-0.005*** (0.001)
ROA	0.089** (0.033)	0.076*** (0.026)	-0.105*** (0.029)	0.131*** (0.033)	0.148*** (0.028)	-0.107*** (0.028)
Legal environment	-0.002* (0.001)	-0.001* (0.001)	-0.000 (0.000)	-0.002 (0.002)	-0.002 (0.002)	-0.000 (0.000)
Audit fee	0.014 (0.010)	0.011 (0.010)	-0.000 (0.004)	0.057* (0.028)	0.055* (0.030)	-0.001 (0.004)
Big 10	0.004 (0.008)	0.005 (0.007)	0.000 (0.003)	NA NA	NA NA	NA NA
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	815	815	815	2,029	2,029	2,029
R-squared	0.563	0.600	0.528	0.245	0.253	0.226

Industry fixed effects are included in all estimations. Standard errors, clustered at the industry level, are shown in brackets. The detailed definitions of variables are in Table 1. \*, \*\*, and \*\*\* denote significance at the 10, 5 and 1% level, respectively.



**Table 5.** Robustness Check 1: Alternative proxy for earnings management for the main results.

Variable	(1)	(2)
	AEM_CHOI	MAEM_CHOI
Mortality	0.535*** (0.105)	0.620*** (0.119)
Leverage	0.303 (0.197)	0.348 (0.218)
Book-to-market ratio	-0.017* (0.008)	-0.017* (0.009)
Sales growth	0.007 (0.005)	0.007 (0.006)
Institutional ownership	0.033 (0.034)	0.027 (0.037)
IND	-0.389* (0.209)	-0.406* (0.216)
Big 10	-0.021 (0.019)	-0.021 (0.021)
Top 10 ownership	-0.126* (0.067)	-0.138* (0.075)
Firm Size	-0.111*** (0.038)	-0.112*** (0.040)
Age	0.020 (0.026)	0.019 (0.029)
Cash growth	-0.074 (0.065)	-0.086 (0.074)
Tobin Q	0.150 (0.104)	0.171 (0.121)
ROA	0.116 (0.132)	0.140 (0.152)
Audit fee	0.075 (0.048)	0.073 (0.049)
Legal environment	-0.002 (0.002)	-0.002 (0.002)
Industry FE	Yes	Yes
Observations	2,029	2,029
R-squared	0.253	0.255

difference between a firm's net income and net cash flow (Kim et al., 2018). Subsequently, this was followed by inserting the newly estimated accruals into both the Jones and Modified Jones models to compute new

discretionary accruals. The results shown in Tables 5 and 6 (the alternative estimations of EM) are consistent with the main findings of the current study.

Next, the study used the confirmed proportion of

**Table 6.** Robustness Check 2: Alternative proxy for earnings management for the heterogeneous effect.

Variable	(1)	(2)	(3)	(4)
	AEM_CHOI	MAEM_CHOI	AEM_CHOI	MAEM_CHOI
Mortality×CSR	-0.019*** (0.005)	-0.019*** (0.005)	- -	- -
Mortality×Big 10	- -	- -	-1.131*** (0.044)	-1.322*** (0.047)
Leverage	0.084* (0.044)	0.079* (0.044)	0.296 (0.190)	0.338 (0.209)
Book-to-market ratio	-0.007 (0.006)	-0.008 (0.005)	-0.016* (0.009)	-0.016 (0.010)
Sales growth	-0.003 (0.003)	-0.002 (0.003)	0.007 (0.006)	0.008 (0.006)
Institutional ownership	0.002 (0.024)	0.005 (0.025)	0.013 (0.043)	0.003 (0.050)
IND	-0.040 (0.066)	-0.029 (0.062)	-0.394* (0.214)	-0.413* (0.223)
Top 10 ownership	0.009 (0.027)	0.007 (0.030)	-0.091* (0.051)	-0.098* (0.056)
Firm size	-0.032*** (0.006)	-0.032*** (0.006)	-0.113*** (0.039)	-0.114*** (0.041)
Age	0.016 (0.013)	0.017 (0.014)	0.019 (0.026)	0.019 (0.029)
Cash growth	-0.006 (0.011)	-0.008 (0.011)	-0.072 (0.062)	-0.083 (0.070)
Tobin Q	0.000 (0.003)	0.001 (0.003)	0.149 (0.104)	0.170 (0.120)
ROA	0.059 (0.035)	0.062* (0.032)	0.116 (0.130)	0.139 (0.149)
Audit fee	0.002 (0.010)	0.003 (0.010)	0.075 (0.048)	0.072 (0.049)
Legal environment	-0.002 (0.001)	-0.002* (0.001)	-0.003 (0.002)	-0.002 (0.002)
Big 10	0.008 (0.008)	0.006 (0.008)	NA NA	NA NA
Industry FE	Yes	Yes	Yes	Yes
Observations	815	815	2029	2029
R-squared	0.347	0.345	0.267	0.270

Industry fixed effects are included in all estimations. Standard errors, clustered at the industry level, are shown in brackets. The detailed definitions of variables are in Table 1. \*, \*\*, and \*\*\* denote significance at the 10, 5 and 1% level, respectively.

provincial COVID-19 deaths as an alternative proxy of the regional pandemic seriousness. This was consistent with the previous findings of the current study as exhibited in Tables 7 and 8.

### Difference-in-differences approach

To control for the temporal effect, the study applied a difference-in-differences approach (DID) by including the firm's AEM and REM in the previous year (that is, 2019) and comparing them with those made during the pandemic period. Specifically, the following DID model was used:

$$EM_{it} = \beta_0 + \beta_1 (\text{Post}_t \times \text{Mortality}_i) + \beta_2 \text{Control}_i + \mu_i + \lambda_i + \eta_t + \varepsilon_i \quad (6)$$

where  $\text{Post}_t$  is a dummy variable and equals one if the financial report is announced in 2020, and zero otherwise. The industry fixed effect ( $\mu_i$ ), province fixed effects ( $\lambda_i$ ), and year fixed effects ( $\eta_t$ ) are also included to relieve the possible time-invariant province characteristics and time-varying economic conditions during the sampled periods. It must be noted that  $\text{Post}_t$  and  $\text{Death}_i$  are absorbed by the time and province fixed effects, respectively, and are thus omitted in Equation 6. The standard error is clustered at the industry level. As presented in Table 9, the DID estimates ( $\text{Post}_t \times \text{Death}_i$ ) are still significant after controlling for the province and year fixed effects. Table 10 shows that all the previous moderating effects from CSR performance and Big 10 auditor are robust to this alternative setting. Overall, the baseline results hold when considering unobserved regional and time fixed effects.

## DISCUSSION

### The effect of ownership structure on the earnings management during the pandemic period

The study explored the heterogeneous effect of the ownership structure on the earnings management practices of the listed firms. Columns 1 to 3 of Table 11 show that the firms with higher ownership concentration are more likely to engage in AEM and less likely to use REM during the COVID-19 outbreak, which is supported by the findings from Kim and An (2018). This indicates that the controlling shareholders' cash flow rights are more concentrated and that they can expropriate the value of minority shareholders based on higher AEM. However, REM might lead to more distortions in firms' operations, and hence the controlling shareholders are more likely to reduce the use of REM as the disparity is perceived to grow. In Table 11, Columns 4 to 6 show that the SOEs are more likely to engage in AEM and less

likely to engage in REM during the COVID-19 outbreak, which is consistent with the findings from Ding et al. (2007).

### The effect of the release of the financial report on the information asymmetry during the pandemic period

It is worth considering the effect of the release of the financial report on information asymmetry during the COVID-19 outbreak, since previous findings of the current study have shown that the firms have attempted different earnings management practices in regions with different pandemic severities. Based on the previous studies, such as Fong et al. (2017) and Nagar et al. (2019), the study adopted the daily bid-ask spread as the proxy for information asymmetry, calculation of daily bid-ask spread, drawn from Corwin and Schultz (2012). Columns 1 and 2 of Table 12 show that, after the financial disclosure, the short-term (3 days) information asymmetry levels shrink and the longer term (30 days) information asymmetry levels increase in firms in the most severely affected areas. These findings indicate the short- and long-term effects of the EM practices on the market-based information asymmetry levels during the pandemic, which is in line with the conclusions in Choi et al. (2011). Columns 3 to 6 of Table 12 confirm that the CSR performance and Big 10 auditors can reduce both the short- and long-term information asymmetries of firms after the outbreak of a pandemic. This finding is supported by studies such as Cui et al. (2018) and Pittman and Fortin (2004).

## Conclusion

This study investigated the relationship between the COVID-19 outbreak and the Chinese listed firms' earnings management practices. It also examined how this relationship was moderated by the listed firms' CSR and the external corporate governance mechanism.

Since the COVID-19 outbreak was unexpected, studies on COVID-19 have mainly focused on the market reactions to the pandemic. Currently, there is limited research on the relationship between the COVID-19 outbreak and earnings management practices, especially in China. Further, research conducted in China provides inconclusive and contradictory conclusions on the CSR-EM relationship. In China, there is limited study on how auditors moderate the impact from external shocks on earnings management. To fill these gaps in the extant literature, the current study provided some meaningful thoughts to the policymakers and academics for future considerations.

The results revealed that listed firms in the most severely affected regions were more likely to engage in AEM and less likely to engage in REM. The additional

**Table 7.** Robustness Check 3: Alternative proxy for the regional pandemic severity for the main results.

Variable	(1)	(2)	(3)
	AEM	MAEM	REM
Confirmed	0.412*** (0.027)	0.456*** (0.029)	-0.013*** (0.004)
Leverage	0.093** (0.037)	0.116*** (0.031)	0.055*** (0.013)
Book-to-Market ratio	-0.009 (0.006)	-0.009 (0.007)	0.003* (0.002)
Sales growth	0.001 (0.000)	0.000 (0.001)	-0.001*** (0.000)
Institutional ownership	0.048* (0.025)	0.050* (0.028)	0.020** (0.009)
IND	0.105 (0.128)	0.099 (0.135)	-0.013 (0.027)
Big 10	-0.003 (0.016)	-0.000 (0.017)	-0.001 (0.003)
Top 10 ownership	-0.130** (0.051)	-0.136** (0.056)	-0.041** (0.016)
Firm Size	-0.101*** (0.020)	-0.103*** (0.022)	-0.004 (0.004)
Age	0.035 (0.023)	0.035 (0.024)	0.009** (0.004)
Cash growth	-0.024 (0.035)	-0.033 (0.040)	-0.018*** (0.005)
Tobin Q	0.067** (0.030)	0.075** (0.034)	-0.007** (0.003)
ROA	0.131*** (0.033)	0.149*** (0.028)	-0.052* (0.028)
Legal environment	-0.003 (0.001)	-0.002 (0.002)	0.000 (0.000)
Audit fee	0.059** (0.028)	0.057* (0.029)	-0.001 (0.005)
Industry FE	Yes	Yes	Yes
Observations	2,029	2,029	2029
R-squared	0.240	0.246	0.355

analysis on the moderating effect of CSR and external corporate governance, measured by the Chinese Big 10

auditors, on the baseline finding demonstrates that, in the most severely affected regions, both AEM and REM are

**Table 8.** Robustness Check 4: Alternative proxy for the regional pandemic severity for the heterogeneous effect.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	AEM	MAEM	REM	AEM	MAEM	REM
Confirmed×CSR	-0.012*** (0.003)	-0.012*** (0.003)	-0.057*** (0.009)	- -	- -	- -
Confirmed×Big 10	- -	- -	- -	-0.663*** (0.038)	-0.759*** (0.041)	-0.016*** (0.005)
Leverage	0.113*** (0.032)	0.089*** (0.027)	-0.029 (0.018)	0.091** (0.037)	0.113*** (0.030)	-0.029 (0.018)
Book-to-market ratio	0.001 (0.003)	-0.000 (0.003)	0.003** (0.002)	-0.008 (0.006)	-0.009 (0.007)	0.003* (0.002)
Sales growth	0.000 (0.000)	-0.001 (0.001)	-0.001** (0.000)	0.001 (0.000)	0.000 (0.001)	-0.001** (0.000)
Institutional ownership	-0.026 (0.026)	-0.005 (0.023)	0.014* (0.008)	0.043 (0.025)	0.044 (0.028)	0.014* (0.007)
IND	-0.013 (0.045)	0.018 (0.050)	-0.003 (0.027)	0.093 (0.128)	0.086 (0.135)	-0.005 (0.026)
Top 10 ownership	-0.012 (0.034)	-0.005 (0.036)	-0.027** (0.013)	-0.108** (0.041)	-0.110** (0.043)	-0.027** (0.013)
Firm size	-0.041*** (0.006)	-0.038*** (0.006)	-0.002 (0.003)	-0.102*** (0.020)	-0.104*** (0.022)	-0.001 (0.003)
Age	0.017 (0.011)	0.014 (0.011)	0.004 (0.004)	0.035 (0.023)	0.036 (0.025)	0.005 (0.004)
Cash growth	0.006 (0.005)	0.001 (0.007)	-0.017*** (0.006)	-0.022 (0.033)	-0.031 (0.038)	-0.017*** (0.006)
Tobin Q	0.049*** (0.016)	0.044*** (0.012)	-0.005*** (0.001)	0.067** (0.030)	0.075** (0.034)	-0.005*** (0.001)
ROA	0.089** (0.033)	0.076*** (0.026)	-0.105*** (0.029)	0.130*** (0.033)	0.148*** (0.028)	-0.107*** (0.028)
Legal environment	-0.002* (0.001)	-0.001* (0.001)	-0.000 (0.000)	-0.003* (0.002)	-0.002 (0.002)	-0.000 (0.000)
Audit Fee	0.014 (0.010)	0.011 (0.010)	-0.000 (0.004)	0.058* (0.029)	0.055* (0.030)	-0.001 (0.004)
Big 10	0.004 (0.008)	0.005 (0.007)	0.000 (0.003)	NA NA	NA NA	NA NA
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,642	4,065	4,065	1,623	4,026	4,026
R-squared	0.186	0.215	0.213	0.279	0.233	0.231

**Table 9.** Robustness Check 5: Difference-in-differences approach for the main results.

Variable	(1)	(2)	(3)
	AEM	MAEM	REM
Mortality*Post	0.447*** (0.021)	0.480*** (0.013)	0.011** (0.005)
Leverage	0.241*** (0.061)	0.187*** (0.045)	0.040 (0.025)
Book-to-Market ratio	0.004 (0.005)	0.002 (0.005)	0.009*** (0.003)
Sales growth	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Institutional ownership	0.032* (0.018)	0.029 (0.021)	0.054*** (0.018)
IND	0.118 (0.104)	0.149 (0.119)	-0.032 (0.040)
Big 10	-0.007 (0.016)	-0.002 (0.014)	-0.006 (0.006)
Top 10 ownership	-0.169*** (0.040)	-0.111*** (0.032)	-0.081** (0.031)
Firm size	-0.138*** (0.017)	-0.119*** (0.014)	-0.001 (0.005)
Age	0.036 (0.021)	0.035 (0.022)	0.021** (0.009)
Cash growth	0.002 (0.007)	-0.005 (0.005)	-0.020*** (0.003)
Tobin Q	0.055*** (0.014)	0.058*** (0.016)	-0.014*** (0.004)
ROA	0.195*** (0.047)	0.238*** (0.053)	-0.730*** (0.118)
Industry FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Observations	4,028	4,028	4028
R-squared	0.237	0.253	0.159

Industry, Month×Year, and Province fixed effects are included in all estimations. Standard errors, clustered at the industry level, are shown in brackets. The detailed definitions of variables are in Table I. \*, \*\*, and \*\*\* denote significance at the 10, 5 and 1% level, respectively.

less pronounced for the firms engaged in a high level of CSR activities. Finally, firms audited by the Big 10

auditors would be less likely to manipulate earnings through either AEM or REM.

**Table 10.** Robustness Check 6: Difference-in-differences approach for the heterogeneous effect.

Variable	(1) AEM	(2) MAEM	(3) REM	(4) AEM	(5) MAEM	(6) REM
Mortality×Post×CSR	-0.029*** (0.001)	-0.008*** (0.001)	-0.008*** (0.003)	- -	- -	- -
Mortality×Post×Big 10	- -	- -	- -	-0.762*** (0.038)	-0.795*** (0.025)	-0.329*** (0.017)
Leverage	0.191 (0.222)	0.138 (0.051)	0.125*** (0.041)	0.240*** (0.062)	0.186*** (0.046)	0.084*** (0.019)
Book-to-Market ratio	0.009* (0.002)	0.006 (0.005)	0.003 (0.004)	0.004 (0.005)	0.002 (0.005)	0.013*** (0.003)
Sales growth	0.000 (0.000)	-0.000** (0.000)	-0.000 (0.001)	0.000 (0.000)	0.000 (0.000)	-0.002* (0.001)
Institutional ownership	-0.010* (0.003)	-0.011 (0.020)	0.030 (0.036)	0.030 (0.019)	0.027 (0.021)	0.086*** (0.020)
IND	-0.171 (0.127)	-0.012 (0.037)	-0.104* (0.059)	0.114 (0.103)	0.144 (0.119)	-0.025 (0.048)
Big 10	-0.002 (0.007)	0.006 (0.002)	-0.015 (0.013)	-0.025 (0.023)	-0.012 (0.017)	-0.008 (0.006)
Top 10 ownership	-0.110 (0.084)	0.003 (0.006)	-0.045 (0.045)	-0.161*** (0.039)	-0.100*** (0.027)	-0.139*** (0.034)
Firm Size	-0.105 (0.061)	-0.080 (0.034)	0.012 (0.009)	-0.138*** (0.017)	-0.120*** (0.014)	-0.013 (0.008)
Age	0.000 (0.026)	0.014 (0.006)	0.013 (0.013)	0.036 (0.021)	0.035 (0.022)	0.021** (0.009)
Cash growth	0.020 (0.014)	0.002 (0.001)	-0.026** (0.011)	0.002 (0.007)	-0.005 (0.005)	-0.024*** (0.004)
Tobin Q	0.049*** (0.003)	0.045*** (0.002)	-0.025*** (0.009)	0.055*** (0.014)	0.058*** (0.016)	-0.015*** (0.005)
ROA	-0.094 (0.063)	0.120 (0.049)	-0.241* (0.122)	0.193*** (0.046)	0.236*** (0.053)	-0.203* (0.116)
Audit fee	0.062 (0.044)	0.040 (0.023)	-0.023** (0.011)	0.067*** (0.020)	0.049*** (0.018)	0.000 (0.011)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,639	1,639	1,639	4,028	4,028	4,028
R-squared	0.259	0.321	0.161	0.240	0.257	0.106

**Table 11.** Discussion 1: The mitigating effect from ownership structure.

Variable	(1) ADC1	(2) ADC3	(3) REM	(4) ADC1	(5) ADC3	(6) REM
Mortality×Post×Top 10 ownership	-3.298*** (0.053)	-3.423*** (0.061)	0.140*** (0.039)	- -	- -	- -
Mortality×Post ×SOE	- -	- -	- -	0.756*** (0.027)	0.831*** (0.020)	-0.020* (0.003)
Leverage	0.199 (0.151)	0.185* (0.056)	0.090*** (0.018)	0.235*** (0.062)	0.180*** (0.045)	0.037 (0.056)
Book-to-Market ratio	0.006 (0.010)	0.001 (0.010)	0.014*** (0.003)	0.004 (0.005)	0.002 (0.005)	0.009 (0.008)
Sales growth	0.000* (0.000)	0.000 (0.000)	-0.001 (0.001)	0.000* (0.000)	0.000 (0.000)	-0.001 (0.001)
Institutional ownership	0.037 (0.020)	0.026 (0.022)	0.089*** (0.019)	0.036 (0.032)	0.040 (0.028)	0.057 (0.047)
IND	0.118* (0.029)	0.139* (0.037)	-0.024 (0.048)	0.125 (0.105)	0.155 (0.121)	-0.013 (0.004)
Big 10	-0.006 (0.007)	0.002 (0.007)	-0.009 (0.006)	-0.006 (0.016)	0.000 (0.014)	-0.011 (0.010)
Firm Size	-0.137** (0.028)	-0.119*** (0.009)	-0.014* (0.008)	-0.138*** (0.017)	-0.119*** (0.013)	-0.013 (0.011)
Age	0.036** (0.006)	0.036*** (0.003)	0.023** (0.009)	0.040* (0.021)	0.041* (0.023)	0.004 (0.001)
Cash growth	0.010 (0.010)	-0.004** (0.001)	-0.025*** (0.005)	0.002 (0.007)	-0.005 (0.005)	-0.021 (0.004)
Tobin Q	0.054** (0.009)	0.057** (0.013)	-0.017*** (0.005)	0.054*** (0.014)	0.057*** (0.016)	-0.013 (0.005)
ROA	0.253** (0.037)	0.231* (0.064)	-0.109 (0.070)	0.194*** (0.047)	0.236*** (0.053)	-0.193 (0.067)
Audit fee	0.070*** (0.005)	0.052** (0.008)	-0.001 (0.011)	0.068*** (0.018)	0.050*** (0.016)	0.007 (0.007)
Constant	2.079* (0.517)	1.809** (0.309)	0.298*** (0.087)	2.003*** (0.218)	1.807*** (0.168)	0.262 (0.195)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Province Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,028	4,028	4,028	4,028	4,028	4,028
R-squared	0.243	0.264	0.104	0.241	0.260	0.084

Robust standard errors in parentheses. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1. Industry fixed effects are included in all estimations. Standard errors, clustered at the industry level, are shown in brackets. The detailed definitions of variables are in Table I. \*, \*\*, and \*\*\* denote significance at the 10, 5 and 1% level, respectively.



**Table 12.** Discussion 2: The impact of pandemics on information asymmetry level.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Spread_3	Spread_30	Spread_3	Spread_30	Spread_3	Spread_30
Mortality	-0.013*** (0.005)	0.008*** (0.002)	-	-	-	-
Mortality*CSR	-	-	-0.011*** (0.004)	-0.003*** (0.001)	-	-
Mortality*Big 10	-	-	-	-	-0.048*** (0.007)	-0.011*** (0.004)
Leverage	0.009 (0.010)	0.005 (0.005)	0.016 (0.025)	-0.006 (0.008)	0.009 (0.010)	0.005 (0.005)
Book-to-Market ratio	-0.002 (0.002)	-0.001 (0.001)	0.001 (0.002)	-0.001* (0.001)	-0.002 (0.002)	-0.001 (0.001)
Sales growth	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000* (0.000)	-0.000 (0.000)	-0.000 (0.000)
Institutional ownership	-0.019* (0.010)	-0.007 (0.006)	-0.033 (0.024)	0.005 (0.008)	-0.019* (0.010)	-0.007 (0.006)
IND	-0.034 (0.034)	0.019 (0.028)	-0.043 (0.042)	0.005 (0.021)	-0.035 (0.034)	0.019 (0.028)
Big 10	-0.003 (0.004)	-0.003* (0.002)	-0.008 (0.006)	-0.003 (0.004)	-0.002 (0.004)	-0.003 (0.002)
Top 10 ownership	-0.009 (0.017)	0.011 (0.008)	-0.015 (0.027)	-0.007 (0.012)	-0.007 (0.016)	0.012 (0.008)
Firm Size	0.002 (0.003)	0.003** (0.001)	0.001 (0.004)	0.003 (0.002)	0.002 (0.003)	0.003** (0.001)
Age	-0.007 (0.008)	0.004 (0.003)	-0.015 (0.013)	0.004 (0.005)	-0.007 (0.008)	0.004 (0.003)
Cash growth	-0.008** (0.003)	-0.000 (0.002)	-0.001 (0.007)	-0.002 (0.005)	-0.008** (0.003)	-0.000 (0.002)
Tobin Q	-0.000 (0.002)	0.000 (0.001)	0.004*** (0.001)	0.003*** (0.001)	-0.000 (0.002)	0.000 (0.001)
ROA	0.025*** (0.006)	-0.003 (0.003)	0.036** (0.017)	-0.004 (0.006)	0.025*** (0.006)	-0.003 (0.003)
Audit fee	0.006 (0.005)	-0.003 (0.002)	0.000 (0.005)	-0.002 (0.003)	0.006 (0.005)	-0.003 (0.002)
Legal environment	0.001 (0.001)	0.000 (0.000)	0.001 (0.001)	-0.000 (0.000)	0.001 (0.001)	0.000 (0.000)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,029	2,029	851	851	2,029	2,029
R-squared	0.141	0.063	0.200	0.162	0.142	0.063

Industry fixed effects are included in all estimations. Standard errors, clustered at the industry level, are shown in brackets. The detailed definitions of variables are in Table I. \*, \*\*, and \*\*\* denote significance at the 10, 5 and 1% level, respectively.

The findings of this research could help Chinese authorities, listed firms, and market investors gain more understanding about earnings management practices during a negative shock and under various internal and external factors influencing the quality of financial reporting. In addition, the findings may also provide significant implications for earnings management for academics interested in other emerging markets.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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## APPENDIX I

### Estimating the abnormal cash flow from operations

The following equation is used to estimate the normal level of cash flow from operations (CFO), based on all the firm-year observations in the same industry.

$$\frac{CFO_t}{TA_t} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{Sales_t}{TA_{t-1}} \right) + \alpha_2 \left( \frac{\Delta Sales_t}{TA_{t-1}} \right) + \varepsilon_t$$

where CFO, TA, Sales, and  $\Delta$ Sales represent a firm's cash flow from operations, the total assets, net sales, and the change in the net sales, respectively. Thus, abnormal CFO (that is, ab\_CFO) is calculated by subtracting the actual CFO from the normal CFO using the above estimation model.

### Estimating the abnormal production levels

The following equation is used to estimate the normal production cost (PC), based on all the firm-year observations in the same industry.

$$\frac{PC_t}{TA_t} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{Sales_t}{TA_{t-1}} \right) + \alpha_2 \left( \frac{\Delta Sales_t}{TA_{t-1}} \right) + \alpha_3 \left( \frac{\Delta Sales_{t-1}}{TA_{t-1}} \right) + \varepsilon_t$$

Thus, abnormal PC (that is, ab\_PC) is calculated by subtracting the actual PC from the normal PC using the above estimation model.

### Estimating the abnormal levels of discretionary expenditure

The following equation is used to estimate the normal level of discretionary expenditure (DE), based on all the firm-year observations in the same industry.

$$\frac{DE_t}{TA_t} = \alpha_0 \left( \frac{1}{TA_{t-1}} \right) + \alpha_1 \left( \frac{Sales_{t-1}}{TA_{t-1}} \right) + \varepsilon_t$$

Thus, abnormal DE (that is, ab\_DE) is calculated by subtracting the actual DE from the normal DE using the aforementioned estimation model.

*Full Length Research Paper*

# **Economy-wide impact of tax reform in Ethiopia: A recursive dynamic general equilibrium model**

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**This paper examined the macroeconomic influence of tax reform on the Ethiopian economy using the Dynamic Computable General Equilibrium model. It utilized the updated 2009/2010 Ethiopian Social Accounting Matrix (SAM) from 2005/2006 developed by Ethiopian Development Research Institute (EDRI). To investigate the impact of tax reform on the Ethiopian economy, different simulations were made turn by turn. First, a reduction in direct tax by 30% is introduced to see the impacts of direct tax reduction on the economy. As a result, macroeconomic variables such as GDP, absorption, private consumption, government expenditure, import, export, government income, investment, and aggregate output show a considerable improvement. Additionally, there is an increase in factor income and welfare gain for households though the factor supply of labor and land is fixed compared to base case scenarios. On the second simulation, an increase in sales tax by 67% was introduced to examine at the impact of sales tax on the economy. Thus, increases in sales tax improve the overall economic performance compared to direct reduction. However, under the third simulation decrease in import tariff by 24% worsened the general economic performance by encouraging import and depressing domestic output. Based on the finding, encouraging consumption tax reform, protecting the home country from external sector influence to encourage domestic production is the major policy option recommended to bring a good economic performance with lower distortion since we cannot abolish distortion when we conduct tax reform.**

**Key words:** Ethiopia, tax reform, tax revenue, macroeconomics performance, dynamic computable general equilibrium.

## **INTRODUCTION**

Economic development is the principal and overall objective of all countries in the world especially the issue of improving the living standard of society. In developing countries, apart from the untapped resource accessibility

of resources taxation the most important tool of resource mobilization and social development through the implementation of an effective tax policy (Roy and Richard, 2008; Workineh, 2016; Chaudhry and Munir,

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2010; Wawire et al., 2011).

In most of the developing economies, tax reform and administration are characterized by inefficiency and ineffectiveness which is marked by mal-administration, inability to collect sufficient tax revenues or collecting whatever taxes they are capable of raising for their political advantage without worrying about the economic distortions, economic instability against optimal tax theory (Auerbach, 1996; Abdurrahman and Muzainah, 2016; Brosio, 2000; Tanzi and Zee, 2000).

Tax policy in developing countries is a puzzling topic and has attracted increasing attention in the last two decades and the challenges are serious in least developed countries, where the persistent need to increase revenue for improved investment in public services and infrastructure (David et al., 2016; anzi and Zee, 2000). As empirical literature reveals, the tax revenue performance of developing countries, very poor and far less than developed countries. For example, Ghirmai (2016) indicated that in 2014 the standard tax share of developed countries as a proportion of GDP fall between 29 and 32%, while the corresponding range for developing countries in the medium-income category was from 17 to 22%. The typical tax share in the poor countries falls between 13 and 16%. Tax revenue (% of GDP) in Ethiopia was last measured as 13.5% (NBE 2015/2016). This figure is even less than the 16% average value of SSA countries tax revenue can only finance about 70% of government expenditure on average with 30% of government expenditure financed through grants and borrowings. To overcome this problem Ethiopia, similar to other countries in Africa, made extensive efforts in recent years to reform its tax system to increase tax revenue as well as reduce distortions in the economy. As a result, the country was subjected to numerous tax reforms at different times starting from the 1940s where modern taxation started in Ethiopia (Wogene, 1994; Alemayehu and Abebe, 2005; Fantahun, 2013). Among the measures taken by the government are: direct tax adjustment, administrative reform, increase in tax base and rate, adjusting the exemption of commodity, and other important reform to increase public revenue. However, the basic question is that of whether the tax reforms have produced the required results? Some empirical investigations have been conducted into the performance of these tax reforms in Ethiopia. For instance, Endeg and Wondaferahu (2016), Delesa (2014), Tegegn (2008), and Alemayehu and Abebe (2005) gave special focus to optimal tax theory and implemented partial equilibrium methods unsuccessful to evaluate the complete effects of tax policy as the model they adopted cannot capture general equilibrium concept. Therefore, there is the need for a more all-inclusive method that accounts the various interrelationships between all actors in the economy, to more realistically estimate the economic effects of any

tax policy variations. Current study looks at the economy wide impact of tax reform such as a reduction in direct tax by 5% increase in sales of tax by 67%, and reduction in import tariffs by 24% on the Ethiopian economy by using the dynamic Computable General Equilibrium Modeling to fill the gap identified in the previous literature and to capture the economy-wide impact of tax reform and since tax is the fundamental instrument of government to fine-tune the overall economic condition of the country, researching this area is more productive in developing appropriate tax policy which takes into consideration all actors in the economy.

## REVIEW OF LITERATURE

The problem of fiscal imbalance is everywhere in the world as general and developing countries are predominantly disposed to such problem because of inability to generate sufficient revenue for government expenditure (Tanzi and Zee, 2000). In emerging economies, the formation of a sound tax system challenged by problems due to the structure of their economy, which is characterized by a huge portion of traditional agriculture, large informal sector activities, and by lack of decent tax administrations. Hence, many emerging states end up with very small tax sources, substantial reliance on foreign trade taxes, and comparatively deficient use of personal income taxes (Yakita, 2001; Yoonseok and Sunghyun, 2013; Tadele, 2015; Macek, 2015; Mascagni, 2016; Endeg and Wondaferahu, 2016).

Additionally, in several countries, local governments collect whatever taxes level, regardless of the distortions and distribution effects (Brosio, 2000; Birk and Michaelis, 2004; Feltenstein et al., 2013). However, sound tax reforms necessitate time as well as the obligation of the country's administration to bring about changes in the system, and a solid tax system that encourages the business community and reduces the risk in their financial and investment decisions by establishing business confidence (Odd and Lise, 2003).

All countries face challenges in scheming and operating sound tax system. These challenges are particularly serious emerging economies, where the tenacious need to surge revenue for increased investment in public services for rapid and sustainable economic growth (David et al., 2016, WB, 1990). Many empirical kinds of literature also support this argument. Willi et al. (1997) examined the role of taxation on economic growth in OECD countries. The result reveals that, taxes affected economic performance via their effects on capital and labor markets, and human capital formation.

Sigtas and Igor (2008) evaluated, the economic impact of the 2006 to 2008 personal income tax (PIT) reform in

Lithuania using Computable General Equilibrium (CGE) model-based simulations. They found that the undertaken PIT reform leads to permanent government budget deficits and ever-increasing public debt. Giovanni and Juha (2008) studied Tax Reforms, "Free Lunches", and "Cheap found that both income and consumption unilateral tax rate reductions do not constitute a "free lunch".

Gerali et al. (2016) evaluated the macroeconomic effects of simultaneously implementing fiscal consolidation and competition-friendly reforms in a country of the euro area by simulating a large-scale dynamic general equilibrium model. They found that the combined application of reforms had additional expansionary effects on long-run economic activity. Cecelia et al. (2016), assessed the impacts of a major tax reform in Uruguay by using computable general equilibrium modeling-microsimulation analysis and assessed the combined influence of tax fluctuations on macroeconomic and labor outcomes, poverty, and inequality using a top-down static computable general equilibrium modeling microsimulation approach. They found full implementation of the reform that tends to strengthen the reduction of poverty.

Amir et al. (2013) studied the effects of the tax reforms on key macroeconomic variables found that, reductions in the income tax of individuals and that of companies might affect economic growth. Sajadifaret al. (2012) measured the impact of tax reform on the Iranian economy by using a computable general equilibrium modeling and proved that government revenue was increased and household well-being and GDP deteriorated due to the implementation of VAT. Chiripanhura and Chifamba (2015) used a CGE model to evaluate equity and distributional impacts of Namibia's tax policy reforms introduced in 2013. The result showed that, a decrease in the effective tax rate directly resulted in higher disposable incomes and households benefited from falling consumer prices, thus experiencing improvements in their consumption patterns.

Moses and Eliud (2003), a study on tax reform and revenue mobilization in Kenya and evidence suggests that reforms had a positive impact on the overall tax structure and the individual tax handles.

Bhasin and Kobina (2005), examine the impact of alternative fiscal reforms in Ghana, and found the removal of trade-related import taxes accompanied by an increase in VAT reduces the incidence, depth, and harshness of household poverty, and progress the income distributions of households. Elbushra et al. (2012), evaluated the effects of agricultural tax changes on Sudan's economy by using the computable general equilibrium model. The model results showed that decrease of wheat import tariff increases wheat imports, output, and export of cotton, sesame, industrial and services sectors. Tegegn (2008) evaluated the productivity of the tax system in Ethiopia

for the period 1961-2005 and the analysis showed that tax revenue tends to be inelastic to changes in the tax base. The relatively low tax-to-base elasticity may be explained by the inefficient and poor tax administration and the existence of exemptions.

Alemayehu and Abebe (2005) measured tax and tax reform in Ethiopia from 1990 to 2003 and found the distributional impact indicates certain commodities subject to some kind of tax turned out to be progressive whereas some of them tend to be reverting. Even though much empirical evidence is available, the model they used is a partial equilibrium model, which cannot fully capture the full impact of tax reform on all sectors. Therefore, this study addressed the literature gap by applying a dynamic computable general equilibrium model that estimates full impact of tax reform on all economic sectors.

## METHODOLOGY

### Source and types of data

Data for the completion of the study were collected from EDRI, CSA, and IFPRI. Secondary data were used for the completion of the study which is a national SAM developed for the Ethiopian economy in 2005/2006 and updated for 2009/2010 Ethiopian economy, from Ethiopian Research Development Institute (EDRI). A social accounting matrix (SAM) is a complete, macro and micro data frame; normally demonstrating the economy of a nation. SAM is a square matrix in which each account is represented by a row and a column. Each cell shows the payment from the account of its column to the account of its row. Thus, the incomes of an account appear along its row and its expenditures along its column, and total revenue (row total) equals total expenditure (column total) (Lofgren and Robinson, 2008).

Mostly, the standard SAM has four key accounts. Firstly, activities account reviews production in the domestic economy. Secondly, commodities account, in its row, represents the demand for commodities, and in the column side; it denotes supply of the commodities. Thirdly, factor account, the row side signifies the payment to factors from different sources (it could be from production sectors of the local economy and the rest of the world) whereas the column side signifies the distribution of factor incomes to various institutions. Fourthly, institutional account, all incomes, and expenditures of institutions are shown in the institutions' account. As a sub-account to this account, we have the government, enterprise, household, and the ROW account. When we come to the ROW sub-account, the source of income could be the sale of imports and factors (this represents the outflow of foreign exchange). The inflow of foreign exchange could be expressed by the payment made for exports, factors, transfers (to households and government), and foreign savings.

Also, we have the S-I account, which summarizes the savings of different institutions (it could be from the government, households, and foreign) in the row section, and expenditure for investment on capital goods in the column section. Furthermore, there are accounts for taxes and margins, which signify cost incurred about the flows of trade and transportation (this could be serviced concerning domestic, import, and export marketing). The rationale behind the dissection of this account from the government account is to avoid ambiguity whenever economic interpretation of some payments is made (Wing, 2004).

This study uses the 2009/2010 Ethiopia Social Accounting Matrix

which is produced by the Ethiopian Development Research Institute in 2005/2006 and adjusted for the Ethiopian economy of 2009/2010 (EDRI, 2009/2010). It is disaggregated into 113 activities, 64 commodities, 16 factors, and 13 institutions, 17 different taxes, saving-investment, and rest of the world account show the interaction of different economic agents. Furthermore, for the completion of this study further aggregation of SAM has been done. We have seventeenth aggregated activities (cereal, non-cereal, livestock, mining, agricultural processing, chemical and pharmacy, machine and vehicle, manufacturing electric and water (utility), construction, trade, hotels, administration), education, healthy and another service commodity, four factors, four type of household, enterprise, government, three tax category, saving-investment balance and rest of the world.

### Method of data analysis

To examine the influence of tax reform on the macroeconomic variable, the researcher used a dynamic CGE model. Mostly, CGE model are grouped into two categories: intertemporal and successive (recursive). An intertemporal dynamic model is based on optimal growth theory where the behavior of economic agents is characterized by perfect foresight (Robinson, 2004). On the other hand, the recursive model's agents make their decisions based on past and current information with no role for forward-looking expectations that means the agents have myopic behavior (Lofgren and Robinson, 2008).

In this study by considering Ethiopian people, a recursive dynamic CGE model for Ethiopia is used for analysis purposes because Ethiopia is one of the developing countries in which perfect foresight cannot hold. The reason why the researcher uses the dynamic computable general equilibrium model is: *firstly*, the static computable general equilibrium model has a problem of an analytical inconsistency between within-period decision and between-period decision, leads to the contradictory optimization problem. *Secondly*, the static model does not generate different effects when lowering import tariff on capital goods and consumer goods, and in the calculation of optimal tariff, the highest level of tariff is associated with capital-goods imports, lowering investment and no welfare effects since the capital stock was fixed. *Lastly*, the static model also does not capture dynamic gain from policy intervention and reveals unrealistic results (Keshab and Emmanuel, 2005).

CGE model is a widely used model for policy analysis both in developing and developed countries specifically, on the impact of tax reform. The advantage of using the Dynamic CGE model is that it models the whole economy explicitly, and interlinking between sectors and transactions between economic agents despite being under restrictive assumptions (Burfisher, 2011).

Additionally, the model explains the flows of payment recorded in the SAM. Production and consumption behaviors are captured by first-order optimality conditions; the system includes producers' profit and consumers' utility maximization subject to technology and income constraints, respectively. A technology specified in the model by a constant elasticity of substitution (Lofgren and Robinson, 2008). It shows the movement of a sole product from being supplied to the market to its final demand. The aggregate commodity is governed by a CES function, which allows demanders to substitute between the different producers supplying a particular commodity, to maximize consumption subject to relative supply prices. The decision of producers is governed by a constant elasticity of transformation (CET) function, which distinguishes between exported and domestic goods, and by doing so, captures any time or quality differences between the two products. Domestically produced commodities that are not exported are

supplied to the domestic market.

Substitution possibilities exist between imported and domestic goods under a CES Armington specification and it takes place both in final and intermediates. The Armington elasticities vary across sectors, with lower elasticities reflecting greater differences between domestic and imported goods.

### Equation of the model

The equation of the model follows the SAM disaggregation of factors, activities commodities, and institutions. The equations in the model constitute prices, production and trade, institutions, and system constraints block. The price block specifies equations for the endogenous model prices that are connected to other endogenous or exogenous prices and non-price model variables. The production block contains production in the economy carried out by activities, which assumed to maximize profit subjected to their technology taking prices as given and act in a perfectly competitive setting. The production technology chosen from two specifications permitted in the model, these are the constant elasticity of substitution and Leontief function. In this study, Leontief technology is at the top level of the technology nest. The production function for activity is a function of the quantities of aggregate value-added and intermediate inputs that yield commodity outputs in the production process. The institutional block contains the income and expenditure of the four major institutions (households, government, enterprises, and ROW). Household and enterprises obtain their income from payment of factors made by each activity and transmissions from extra organizations. Households expend their revenue for consumption, saving, directs tax, and transfer to other households and institutions. Except for consumption and tax, the expenditure pattern of the enterprises is similar to that of the households. Government revenue is collected from taxes, factors payment, and transfers from the ROW. Its expenditure is confined to consumption, saving, and transfers to a domestic institution. The total income of each factor is defined as the sum of activity payments.

System block constitutes formulation of the system closures, which equilibrate the model. These are factor market and macroeconomic closure (commodity market, current account balance, and government balance). The choice of closure affects all simulations other than the base simulation. The selected closures in this study are those applicable to the country under the study. The first closure in the standard CGE model is for factor markets. It equalizes the total quantity demanded and supplied for each factor in the factor market.

### Dynamic model (between the period models)

Previously, we have defined the within-period or static component of the model. But, the influence of policy-variations contains dynamic features, such as the inter-temporal effects of changes in investment and the rate of capital accumulation. To explore detail, the relationship between policy changes and factor accumulation, the static model is extended to a dynamic recursive model. In the extended part of the model, labor supply will be determined exogenously while capital accumulation is determined endogenously. Then, novel capital will spread amongst sectors based on each sector's initial share of aggregate capital income (Thurlow, 2004).

## RESULTS AND DISCUSSION

In this part, we presented the influence of tax modification



**Table 1.** Summary of macroeconomic variables % change from baseline simulation.

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Absorption	0.587134	13.51894	0.294054	0.261379	-1.11601
Government expenditure	0.02342	4.077724	0.147264	0.099212	0.627477
Private consumption	0.400199	11.79605	0.141819	0.124718	-1.27489
Output	0.66	11.82	0.22	0.19	-1.13
Fixe investment	0.143253	18.34741	0.508234	0.453879	-0.96953
Exports	0.086368	7.848967	0.255122	0.231153	-0.65153
Imports	-0.16325	17.3368	0.433622	0.40614	-0.74358
GDP at market price	0.510247	10.93993	0.197454	0.162078	-1.32287
Net indirect tax	0.03959	8.83959	0.225264	0.068579	-5.81136
GDP at factor cost	0.470657	11.09501	0.195694	0.168097	-1.10425
Government revenue	0.10017	17.5321	0.817928	0.549384	3.59181
CPI	0.612639	-2.19218	-1.1933	-0.30472	-0.81486

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increased by 67% and Impor\_Dec = Import Tax decreased by 24%.

Source: Own computation from simulation result, 2020.

on the economy of Ethiopia. To look at the impact, we state different scenarios to assess the impacts of policy shocks on macroeconomic tax reform in Ethiopia and the experiment results. The baseline simulation established to serve as a reference in an absence of any policy shock and serves as a benchmark for policy evaluation. Thus, in this scenario, all macroeconomic variables show their value without any policy shock to the economy. Therefore, the baseline simulation used as the benchmark value to compare the values of different variables after the policy shocks. Here, we look at the proposed policy option by the researcher to look at the overall impact of tax reform on the Ethiopian economy. Accordingly, three possible policy option were proposed such as reduction of indirect tax by 30%, increase in sales tax by 67%, and reduction in import tariffs by 24% were simulated turn by turn to scrutinize the influence of all policy scenarios on the macroeconomic performance, factory utilization and welfare of households. The researcher introduced a 30% direct tax shock because the government of Ethiopia in 2017 reformed the income tax-free threshold and adjusted the tax bracket. Accordingly, it increases the tax-free threshold on personal income tax from 150 to 600 and from 1800 to 7200 for business profit tax, and due to increase in tax-free threshold the marginal tax rate shows a 5% reduction for all taxpayers. On average it can be calculated as follows  $54\% + 5\% / 2 = 29.5\% \cong 30\%$ . Secondly, 67% shock introduced since the sales tax average growth from 2003 to 2017 is 66.27% yearly and we assumed this situation continues until 2025 and we introduce the shock by this amount for looking at the impact of tax reform. Lastly, a reduction in import tariffs

by 24% was introduced since WTO's maximum tariff cut for the agricultural items that developing countries required is 24%.

### Impact of tax reform on macroeconomic variables

In this part, we look at the impact of tax reform on all macroeconomic variables as a whole for each simulation in turn. Accordingly, Table 1 shows the summary of the results of the three simulations focusing on absorption, private consumption, fixed investment, government expenditure, export, and import, gross domestic product at market price, net indirect tax, and real GDP at factor cost (GDPFC), government income and CPI. Table 2 summarizes the impact of tax reform on all macroeconomic variables.

According to Table 1, all macroeconomic variables show some improvement compared to the baseline simulation excluding the third simulation and the consumer price index for which we can observe the negative value for all scenarios. As can observe from Table 1 on the first 2 simulations, the macroeconomic variables have shown positive changes.

Absorption indicates that there is a 0.29, 0.26, and -1.48% increases in scenario 1, scenario 2 and decrease in scenario 3 as compared to the baseline scenario. Absorption increased due to an increase in investment, private consumption, and government expenditure. In simulation 1, private consumption reveals a 0.14% increase from baseline simulation because of decrease in direct tax increase the disposable income which boosted

**Table 2.** Sectoral impact of tax reform % change from baseline simulations.

Variable	Base	Dtax_Dec	Stax_Inc	Impor_Dec
GDP growth	11.91	0.28	0.25	-1.1
Agricultural growth	9.64	0.12	0.13	-1.76
Industrial growth	16.93	0.4	0.36	-0.91
Service growth	9.94	0.23	0.21	-1.01

Dtax\_Dec = Direct tax decrease by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%.  
Source: Own computation from simulation result, 2020.

**Table 3.** Summary of Factor Income % Change From Baseline Simulation.

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Labor	0.180062	15.35896	0.22423	0.211058	-1.01768
Land	0.061101	12.32482	0.033015	0.057381	-1.65712
Livestock	0.014318	14.40802	0.249735	0.231056	-1.28692
Capital	0.214715	11.25132	0.252727	0.16509	-1.45797

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%.  
Source: Own computation from simulation result, 2020.

private consumption. In simulation 2, private consumption reveals a 0.12% increase from baseline simulation but the increment is less than in simulation 1. This is because when the government increases the sales tax, the price of product increases, which results in a reduction in purchasing power parity of consumer, who then failed to consume more additional goods as before. But in simulation 3, apart from the reduction in import tariffs, private consumption shows a massive reduction and it is also an unexpected result for us. When we come to the aggregate output there are overall improvements in output in simulations 1 and 2 and reduction in the third simulation because reduction import tariffs result in an increase in import and hurt domestic production.

The gross fixed investment shows a relatively good improvement in simulations 1 and 2, which is 0.50, 0.45 and a huge reduction in simulation 3, which is -0.92. This may be because Ethiopia is an emerging economy in which the private sector is not well developed; reduction in direct tax increases the real income of the society than private investment. But for simulation 3, reductions in import tariffs increase imports and discourage investment for an unknown reason.

On other hand, government expenditure shows a positive change in all simulations which is 0.14, 0.09 and 0.62 in simulations 1, 2 and 3, respectively. These imply that on simulation 1, increase in tax-free threshold is government expenditure and then increases government expenditure. On simulation 2, rise in VAT surge revenue of government to fund an increase in tax-free threshold and government expenditure is reduced compared to simulation 1 as a result of VAT used to recover budget

loss in the reduction of direct tax. On simulation 3, government expenditure shows, merely growth in government expenditure due to the fact that reduced import tariffs opens the country to the world increase and government expenditure increase to make domestic producer competitive. Even though there is an increase in export, still external balance is deteriorated in all scenarios compared to the baseline simulation due to a further increase in import. In simulations 1 and 2, the growth rate of imports is double of growth rate in export which worsens the negativity of trade balance.

Both total production (GDP) at factor cost and GDP at market price show increment as a result of a decrease in direct tax and increase in sales tax but reduced simulation 3 due to reduction in import tariffs. In simulation 1, reduction in direct tax, encourages production and consumption as well as saving then GDP.

Moreover, reduction in tariffs encourages import and hampered domestic production by depressing the price of imported goods. Net indirect tax shows some improvement in the first two simulations and a huge reduction on the third simulation. In simulation 1, indirect tax increases since production increased and in simulation 2, increase in VAT tax by 67% improves the level of indirect tax because of increase in consumption also increase the VAT. However, on the third simulation, the impact on the net indirect tax is very critical which is -5.81 due to a reduction in tariffs, which accounts for the lion share for indirect taxes.

Government income shows huge improvement when compared with baseline simulation as a result of tax reform. The value of government saving from baseline is

**Table 4.** Summary of factor supply (percentage change from baseline simulation).

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Labor	0.18	2.4	0	0	-2.4
Land	0.06	3.1	0	0	-3.1
Livestock	0.06	18.11	0.29	0.32	-0.14
Capital	0.86	15.66	0.31	0.27	-0.28

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%. Source: Own computation from simulation result, 2020.

0.81, 0.54, and 3.59, respectively for simulations 1, 2, and 3.

In simulation 1, reducing indirect tax by 30% improved the government income by creating voluntary tax compliances.

In simulation 2, government income showed some improvement compared to simulation 1 due to an increase in sales tax by 6.7%. Overall, the result from the third simulation, which is the reduction of import tariffs, reveals an implausible result apart from researcher expectation and for which there is no justification because it is against the basic economic theory.

Lastly, the other important issue is the concept of price effect. From the simulation price, which shows reduction on the three simulations but the decrement is less than baseline simulation, which is -2.19, and among the three simulations, reduction in direct tax is more successful in reducing the price of goods and services.

### Sectoral impact

When we observe the sectoral impact of tax reform, all sectors show an improvement in simulations 1 and 2 but with a huge reduction in simulation for unknown cases. GDP increase by 0.28 and 0.25 in simulations 1 and 2 show 1.1 reductions in simulation 3. The agricultural sector improved by 0.12 and 0.13 in simulations 1 and 2 and the service sector shows good improvement in simulations 1 and 2 followed by the service sector. Table 2 shows the summary of the sectoral impact.

### Impact of tax reform on factor utilization

The simulation result revealed that factor income of households show improvement when compared with the base case scenario. This is because lowering the tax rates for households, results in higher factor income for them. This might be because the reduction in direct tax is directly linked to the production level, which shows improvement in the simulation period. On the other hand, government income, which is the source of factor income improved income, which is the source of factor income improved during the simulation period, causes an increase in factor income of the household.

On simulation 3, reduction in import tariffs discourages domestic production, initiates import from rest of the world, which result in a contraction in domestic production. When we compare the three-simulation impact on factor income, factor income highly showed improvement in simulations 1 and 2 and show a reduction in simulation 3. Table 3 is the summary of factor income from simulation results.

As can be observed from Table 3, income of all factors of production shows a considerable improvement in simulations 1 and 2. But simulation 3 shows a reduction, because factor income generated during the production process reduces import tariffs and discourages production then factor income.

When we consider factor supply, labor and land supply were constant as base case scenario. For all tax reform by reducing the factor supply, workers will perceive rise in the discretionary income with the lower tax rate, they would keep more of their gross income; therefore, they have more money to spend. Table 4 summarizes the factor supply result from the simulation.

According to Table 4, there is no improvement in factor supply due to the impact of tax reform in simulation 1. Additionally, income tax rates may encourage people to work long time and overtime to keep more of their income and due to the substitution effect, work is more attractive with lower tax rates as well as with lower tax rates it is easier to get their target income by working fewer hours. On simulation 2, increase in sale tax results in no change in labor and land. However, in simulation 3, there is a severe reduction in factor supply due to reduction in import tariffs encourage import by reducing price which causes a reduction in domestic production than factor supply. When we come to the livestock and capital, there is a little improvement in capital and livestock supply. This is because decrease in direct tax rate increases real income and the saving which promotes investment. Increase in demand of capital and livestock increases supply of capital and livestock.

### Impact of tax reform on household income, expenditure, and consumption

The principal sources of revenue for families are factor

**Table 5.** Summary of Household Income % Change from Baseline Simulation.

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Household rural- poor	0.1	14.61	0.21	0.2	-1.12
Household rural-non-poor	0.19	13.31	0.17	0.18	-1.37
Household urban -poor	0.01	13.61	0.21	0.22	-1.17
Household urban non-poor	0.13	12.28	0.2	0.2	-1.07

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%. Source: Own computation from simulation result, 2020.

**Table 6.** Summary of household expenditure percentage change from baseline simulation.

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Household rural-poor	0.099281	15.62776	0.116098	0.138666	-1.2227
Household rural non-poor	0.178953	14.32447	0.069682	0.111658	-1.47938
Household urban poor	0.007627	14.57787	0.210251	0.542856	-0.897
Household urban non-poor	0.113909	13.27531	0.110318	0.151927	-1.14713

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%. Source: Own computation from simulation result, 2020.

payments produced throughout production and obtain transmissions from other institutions like government, other domestic institutions, and the rest of the world. As observed from Table 5, rural and urban households would experience an increase in their real incomes compared to the base case. This is due to an increase in overall production as a result of tax reform. Table 5 summarizes the household income from the simulation result.

Tax reform results increase expenditure for both poor and non-poor rural households in all simulation scenarios. This because reduction in direct tax increases real income of household which enables them to spend more to meet their basic need. On other hand for wealthier households in the urban reduction, indirect tax increases their real income and initiates the saving to spend on luxury good by reducing current consumption. Simulation 2 increases sales, tax reduces the real income of the society and then their purchasing power parity. Table 6 represents the household disaggregated consumption expenditure of the household from the simulation result.

The result from simulations 1 and 2 show a good improvement as compared to the baseline simulation except for simulation 3 for which we do not have any justification. The consumption pattern in urban poor is far better than the other household group. Similarly, the consumption pattern for rural areas is better than the urban area. The poor household benefits as shown in Table 6 which summarized the impact of tax reform on all household categories. Accordingly, on the first simulation,

that is, simulation 1 based on a decrease in direct tax highly affects the urban poor households; all other household category is not affected by the tax reform as the urban poor households. This might be due to the fact that agricultural outputs of rural households are less prone to the market transaction most of the time (Table 7).

### Impact of tax reform on the welfare of households

The welfare of society indicated using equivalent variation, which is the most important indicator of the welfare effects of policy reform. As policy shocks followed by major price adjustments, the EV measures the level of income that the consumer needs to pay before the shock to leave him as well off at the equivalent level of utility changes after the price changes. From any policy change, a consumer harmed or benefited before the policy change by paying or receiving the price equivalent in income, negative or positive equivalent of variation changes represent welfare (utility) loss or gain because of the policy shock. Table 8 in simulation 1, due to reduction in direct tax EV reveals positive change for all household category compared to baseline scenario. An urban poor household is highly benefited followed by rural non-poor households from the reduction in direct tax by increasing their real income. Table 8 summarizes the change in the value of equivalent variation from the base case scenario.

While the rural poor household less benefited from a

**Table 7.** Household consumption % change from baseline simulation.

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Household rural-poor	0.099281	15.62776	0.116098	0.138666	-1.2227
Household rural non-poor	0.178953	14.32447	0.069682	0.111658	-1.47938
Household urban poor	0.007627	14.57787	0.210251	0.542856	-0.897
Household urban non-poor	0.113909	13.27531	0.110318	0.151927	-1.14713

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%. Source: Own computation from simulation result, 2020.

**Table 8.** Summary of welfare impact of tax reform % change from baseline simulation.

Variable	Initial	Base	Dtax_Dec	Stax_Inc	Impor_Dec
Household rural-poor	0.099839	22.81377	0.331999	0.299398	-6.20286
Household rural non-poor	0.180033	20.08572	0.187103	0.20927	-5.9868
Household urban poor	0.007679	23.72185	0.794301	1.964567	-4.82819
Household urban non-poor	0.114487	22.82349	0.47884	0.447275	-4.6508

Dtax\_Dec = Direct tax decreased by 30%, Stax\_Inc = Sales tax increase by 67% and Impor\_Dec = Import Tax decrease by 24%. Source: Own computation from simulation result, 2020.

reduction in direct tax compared to other types of household; this may be due to the fact that rural poor households depend on agricultural activities. In simulation 2, increase in sales tax by 67% results in severe reduction in welfare of all categories of household compared to the first simulation. When we come to simulation 3, the welfare loss is high apart from a reduction in import tariffs which results in a price decrease then increase the welfare of the society and results in the expectation of researcher and opposite basic welfare theory. When we compare the three simulations together, there is a considerable welfare gain in the first simulation and high welfare loss in the third simulation while simulation 2 reveals the moderate impact on welfare loss and gain.

## CONCLUSION AND RECOMMENDATIONS

This paper examined the macroeconomic impact of tax reform applying a recursive dynamic computable general equilibrium model. The study used 2009/2010 EDRI Social Accounting Matrix 2005/2006. Different scenarios were done to evaluate the economy-wide impact such as a reduction in direct tax, increase in sales tax, and reduction in import tariffs. Our current analysis shows that following the tax reform, there is an overall improvement in economic activity in simulations 1 and 2 but not for simulation 3 and there is no justification that can support the result of simulation 3. On the other hand, factor supply remains constant apart from a change in tax

policies though there is an improvement in factor income because of an overall increase in economic performance, which is witnessed by growth in GDP at factor cost. There is an increase in household income and consumption in simulations 1 and 2, but not in simulation 3. Lastly, the impact of tax reform on household welfare is considered. There is welfare improvement raised from a good economic performance from simulations 1 and 2. Urban poor household is highly benefited from the welfare gain because of direct reduction tax results in short-term increase in real income that increases consumption of urban poor and then welfare.

Based on the finding, the researcher forwarded the following policy implication. Since tax one element macroeconomic variable that can link micro and macro aspect of the economy, a little bit modification on tax to change some macro and microeconomic variable results in the overall disturbance of the economic system. The deep and careful investigation should intensively and extensively be conducted on immediate and long-run effects before conducting tax reform since the intervention of the government has both positive and negative implications on the economic activities. In our analysis, reduction in direct tax and increase in sales tax improved overall economic performance and reduction in import tariffs were not successful deed. Therefore, the best way to improve economic performance would be conducting a comprehensive direct tax reform and general tax on consumption, which would eliminate tax distortions on inter-temporal decisions, labor supply decisions, savings, and investment. Additionally, the

economic reputation of duties tariffs for emerging country is very crucial for public revenue generation, infant industry protection, the balance of payment protection, and attraction of investors are the major benefits of imposing customs tariffs. As a result, tariff reduction in Ethiopia where infant industry is abundant is not recommended rather than protecting the country from external sector influence to encourage domestic production since it adversely affects output and another sector of the economy.

## CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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*Full Length Research Paper*

# The influence of mental accounting, perceived trust and power of revenue authorities on tax compliance among SMEs in Zimbabwe

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This study is done against a background of perennial negative variances between the projected and actual tax collections in Zimbabwe. Studies that look at the influence of mental accounting, perceived trust and power of tax authorities on tax compliance seem to be lacking in Africa. The target population comprise of self-employed tax payers because these currently comprise the highest form of employment among Zimbabweans. Their compliance depends to some extent on their mental accounting practices, perceived trust and power of the tax authorities. The study objectives are therefore to i) examine the influence of mental accounting on tax compliance ii) examine the influence of trust in revenue authorities on tax compliance and iii) examine the influence of perceived authority of revenue officers on tax compliance. This study used mental accounting theory, slippery slope framework, perceived trust and perceived power of tax authorities to explain tax compliance behaviour among SME owners in Harare, Zimbabwe. A questionnaire is used as the data collection tool, with constructs adopted from some scholars. Self-employed tax payers registered under the Small to Medium Enterprises Association of Zimbabwe (SMEAZ). Those which are based in Harare are selected using simple random selection method. The STATA software package is used to analysis data. The nature of relationships that exist among the variables under study are established and reported on. It is on the basis of these findings which include that there was a strong positive relationship between perceived trust in tax authorities and voluntary compliance that recommendations are made.

**Key words:** Mental accounting, mental accounting theory, slippery slope framework, perceived trust, perceived power of tax authorities, tax compliance, ZIMRA.

## INTRODUCTION

This study examined the influence of mental accounting, perceived trust and perceived power of tax authorities on tax compliance by SMEs in Zimbabwe. Historically,

economists have tried to make people believe that money is fungible (that is, total spending depends on the total amount available) and that expenditure is rational and is

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allocated based on necessities. Irrational spending behaviour was, however, still observed among people. Psychologists, therefore, came up with theories that try to explain irrational human behaviour that includes hedonic expenditure. This helped improve understanding of human behaviour and therefore, policy formulation. Despite knowledge of these economists' and psychologists' postulations of what affects spending patterns, contradictions still exist on which view is superior between economists' and psychologists' postulations of spending behaviour. The demand for, compliance with and enforcement methods for tax payments has therefore, been shrewd with controversies since biblical times.

This study used mental accounting theory, slippery slope framework, perceived trust and perceived power of tax authorities to explain tax compliance behaviour among SME owners in Harare, Zimbabwe. This expanded knowledge of previous studies on the effects of these cognitive processes on spending behaviour in an economically and culturally different environment. No studies existed in Zimbabwe that looks at the effect of these variables on tax compliance. Some studies on the effect of mental accounting, trust in and power of tax authorities on tax compliance (Muehlbacher et al., 2011; Muehlbacher and Kirchler, 2013; Budak, 2012; Gangl et al., 2015; Tsikas, 2017) existing focus on other countries, differences in Zimbabwe might be expected because of differences in economic environment and culture

The study was done against a background of consecutive negative variances between the projected and actual collected tax revenue in Zimbabwe. This was partly attributed to tax evasion. SMEs form a significant percentage of players in the Zimbabwean economy, yet revenue collections from these in Zimbabwe remained low. Given that SMEs are not mandatorily required to produce financial statements for assurance, the temptation to evade tax among these could be high because information regarding the profits they make is not always readily available. This made it necessary to infer on strategies that might help ensure compliance by these. Mental accounting, trust and power of tax authorities are some of the predictors of tax compliance which seemed to be overlooked by tax authorities in their endeavours to ensure compliance. It seemed the same tax collection strategies were being applied for all tax payers. Variations on compliance enforcement strategies could be adopted for different tax payers depending on the influence of the tax payers' perceived trust in and perceived power of tax authorities on tax compliance as well as their mental accounting practices.

### Study objectives

(i) To examine the relationship between mental accounting for tax and form of tax compliance

(2) To examine the relationship between perceived trust in revenue authorities and form of tax compliance

(3) To examine the relationship between perceived power of tax authorities and form of tax compliance

From each of the research objections, hypotheses were, therefore, crafted.

### Hypotheses

H1(a): There is a positive relationship between mental accounting for tax and voluntary compliance.

H1(b): There is a negative relationship between mental accounting for tax and forced compliance.

H2(a): There is a positive relationship between perceived trust in tax authorities and voluntary tax compliance.

H2(b): There is a negative relationship between perceived trust in tax authorities and enforced tax compliance.

H3(a): There is a positive relationship between perceived power of tax authorities and enforced compliance.

H3(b): There is a negative relationship between perceived power of tax authorities and voluntary compliance.

### Importance of the study

Knowledge of Mental Accounting practices helps explain behaviour that otherwise seems irrational (Anolam et al., 2015). In other words, it helps in understanding the psychology of choice (Thaler, 1999). Thus, the choices that tax payers make on whether to pay taxes or not might be a result of their mental accounting practices. Mental accounting practices of tax payers could influence government policy, for example, tax withholding (Davies et al., 2006; Fochmann, 2010; Hastings and Shapiro, 2012). Similarly, perceived trust and power of tax authorities might also influence strategies adopted by tax authorities. A respectful approach in collecting taxes might be adopted for those tax payers that have trust in tax authorities while application of the law with full rigor might be implemented for the non-voluntary tax payers (Muehlbacher et al., 2011). Knowledge of the effects of perceived trust and power of tax authorities on tax compliance might help governments in different nations choose to either create an environment of trust or power to achieve tax compliance depending on the tax payers' attitudes. Out of the existing literature sources on mental accounting and tax compliance (Duggan, 2016; Waidler, 2016; Fochmann and Wolf, 2015; Muehlbacher et al., 2015; Muehlbacher and Kirchler, 2013; Seiler et al., 2012; Egozcue and Wong, 2010; Muehlbacher and Kirchler, 2010; Milkman and Beshears, 2009; Lim, 2006; Thaler, 1999) there seems to be none that focuses specifically on Zimbabwe. Differences might be expected because of differences in economic environment

fundamentals, tax enforcement laws, government resources and accountability to the tax payers which could affect tax payers' perceptions of trust in and power of tax authorities. This study sought to expand on this body of knowledge.

## LITERATURE REVIEW

### Theoretical framework

The study objectives were based on two theoretical frameworks, that is, mental accounting theory initiated by behavioural economists like Thaler (1985, 1990) and slippery slope framework by Kirchler et al. (2008).

Mental accounting theory posits that people create psychological accounts in their minds in which they allocate budgets for their income and this affects their spending behaviour (just like accountants do in books of accounts) following postulations by Thaler (1999). The first hypothesis is based on this theory. It assumes that those who create mental accounts for taxes may likely be voluntarily tax compliant and those who do not create mental accounts for taxes may likely not voluntarily comply but could pay if they are forced to, that is, if they feel they cannot get away from the long arm of the law. The slippery slope framework assumes two forms of tax compliance; voluntary and enforced. It examines the effectiveness of economic and non-economic factors in ensuring tax compliance. It postulates that existence of perceived trust in tax authority results in voluntary compliance and existence of perceived power of tax authority results in enforced compliance. The two dimensions, the powerfulness and the trustworthiness of the tax authorities are seen as moderating each other in ensuring tax compliance (Tsikas, 2017). Based on this theory, the second and third hypotheses are formulated.

### Mental accounting

Mental accounting is literary the same as accounting and budgeting process in organizations, only that this occurs in the mind (Ramphal, 2006). In as much as budgets are used for control purposes in organizations, so is mental accounting (ibid). This is because individuals tend to open accounts in their minds for each transaction as it occurs (ibid) or as they think or plan about it. According to this view, individuals then tend to evaluate the costs and benefits associated with each account separately (Tversky and Kahneman, 1981; Davies, 2003). This kind of behaviour might lead to contradictions in expected behaviour outcomes when evaluated based on standard economic theories (expected utility theory and life cycle theory of savings). Ramphal (2006) citing assertions by Rabin and Thaler (2001) and Kahneman (2003) agree with this view and note that standard economic theories assume that consumers are driven by rational thinking, optimal and consistent decision making. According to

Thaler (1990), economists are or try to be sophisticated and clever while mental accounting causes consumers to remain humane in decision making. Zyl and Zyl (2016) note that while in reality money is the same, mental accounting results in the labelling of money (putting money into jars), assists in self-control, and that segregation of money affects the propensity to consume and how people save.

### Reasons for mental accounting

Several reasons have been suggested why people practice mental accounting. Some scholars say it makes decision making easy because each transaction is evaluated in relation to its mental account (Thaler, 1990; Davies, 2003). This may result in irrational behaviours because a rational decision would rather result from evaluation of different decisions together. Hastings and Shapiro (2012) tested mental accounting in response to prices of gasoline and their findings showed how mental accounting sometimes contradicts rational thinking. Evaluating different decisions together, however, makes decision making complex and time consuming (Ramphal, 2006). This makes bounded rationality theory by Herbert A. Simon come into play which refers to the limitations of the human intellectual capacity (Simon, 1996: 250; Sent, 1997: 323). This, therefore, explains the differences between optimal and actual behaviour.

### Evidence of mental accounting practices

Waidler (2016) noted the influence of mental accounting in how public and private transfers are spent by individuals, thus, the way money is spent depends on its source. Anolam et al. (2015) studied the effect of mental accounting on corporate profitability. They found a relationship between categorization process and corporate profitability. They also found that the three components of mental accounting which are transaction utility, categorization process, and choice bracketing jointly affect corporate profitability. It can therefore be inferred that it is important to categorize every economic transaction in the books of accounts. Salas (2014) found that having labelled mental savings accounts increases savings of low income individuals. Ramphal (2006) found that the consumer decision making process in South Africa is influenced by the some identified components of mental accounting which are mental budgeting, prospective accounting, payment depreciation, and sunk cost effect. Davies et al. (2006) found that mental accounting systems were in operation in household consumption patterns in Malawi.

### Tax compliance

Tax compliance refers to the inclination by tax payers to

meet legal obligations set by a tax system (IMF, 2015; Aladebe et al., 2011; Kirchler, 2007). It is important for revenue authorities to know what makes people tax compliant. According to Gangl et al. (2015) tax compliance is affected by three forms of motivation to comply; (i) enforced, (ii) voluntary and (iii) committed motivation. According to these scholars, those who comply because of enforced motivation do so because of the fear of tax audits and fines. Voluntary motivation is a result of respect for the law which makes payment of taxes the easiest option to comply. Those with committed motivation do so because of a feeling of intrinsic moral obligation and a responsibility to be honest. In their study of Dutch self-employed tax payers, Gangl et al. (2015) found that enforced motivation is negatively related to tax compliance and committed motivation is positively related to tax compliance. They, however, found no relationship between voluntary motivation and tax compliance. Tsikas (2017) found a positive relationship between trust and compliance as well as power and compliance. The scholar also found that power and trust moderate each other in ensuring compliance. Increased cohesion, is however, noted to eventually damage tax compliance.

### **Mental accounting and tax compliance**

Several studies have been carried out focusing on the effect of mental accounting on tax compliance. Muehlbacher and Kirchler (2013) looked at mental accounting and tax compliance of self-employed tax payers; Fochman and Wolf (2015) studied mental accounting and tax evasion decisions; Egozcue and Wong (2010) researched on mental accounting and multiple outcomes; Duggan (2016) focused on mental accounting and voluntary compliance while Ashby and Webley (2008) studied tax compliance of hairdressers and taxi drivers on the tip income they receive. These studies yield different findings. Muehlbacher and Kirchler (2013) noted that perceptions of tax due differ widely among self-employed tax payers. They note that mental accounting has an effect on these perceptions because mental accounting affects the segregation of net income and the tax due. This is because some tax payers mentally separate the tax due from the net income, while others claim ownership of the whole amount before considering taxes and as a result experience losses when they are made to pay taxes. These scholars note that mental accounting for taxes is associated with age, income levels, number of employees, attitudes towards taxes and self-reported compliance. Ashby and Webley (2008) in their investigation with a group of participants namely taxi drivers, hairdressers and beauticians concerning their compliance with reporting tips as income demonstrated low compliance, partly for the reason that they perceived tips as a gift from their clients rather than categorizing mentally the money as income taxable. They found that hairdressers and beauticians mentally

segmented tips and out-of-hours' work from standard income, and were less likely to declare those amounts. This finding was not replicated with taxi drivers, and it was argued that this was in part due to their inability to readily mentally separate tip money from the fare. As a result, the taxi drivers declared tax from all their income including tips because they failed to mentally separate their income. This is consistent with assertions by Duggan (2016) who noted that the main compliance deliberation in the taxation context is the failure of business owners to create mental tax accounts.

### **Trust in and power of tax authorities**

The relationships between the variables trust in and power of tax authorities is based on the slippery slope framework (Kirchler, 2007; Kirchler et al., 2008). The assertions by these scholars are that if both trust in and power of tax authorities are low, tax payers act selfishly and tax compliance is low. If trust in tax authorities increases, compliance will increase. If power of tax authorities increases, compliance also increases. What differs under the environment of power or trust is the form of compliance. Under an environment of trust there is voluntary compliance. Under an environment of high power of tax authorities, there is enforced compliance. These assertions are further echoed by Wahl et al. (2010) who present that as trust increases, power decreases and there is voluntary compliance. On the contrary as power increases, trust decreases and there is enforced compliance.

### **Trust in and power of tax authorities and compliance**

Trust in tax authorities results from the psychological determinants of tax behaviour such as social norms and justice perceptions (Budak, 2012). These scholars note that trust in tax authorities tends to promote voluntary tax cooperation among self-employed tax payers in Turkey. Powers of tax authorities, on the other hand, refer to the economic determinants of tax compliance which include probability of an audit, tax fines and so on (Kirchler, 2007; Kirchler et al., 2008; Budak, 2012). Studies (Budak, 2012) found that power of tax authorities promotes enforced tax compliance among self-employed tax payers in Turkey. Both trust in tax authorities and power of tax authorities result in the creation of two environments which lead to two forms of compliance; voluntary compliance and enforced compliance (Kirchler et al., 2008). Despite existing literature, the current study rains necessary because mental accounting practices differ across individuals, sectors and cultures. This view is also supported by Muehlbacher and Kirchler (2013) who argue that mental accounting practices depend on corporate culture. This study expanded this view to differences in national cultures and economic

environments across nations which could present different findings, making a related study in Zimbabwe necessary.

## METHODOLOGY

### Study population

The population consisted of all SMEs registered under the Small to Medium Enterprises in Zimbabwe (SMEAZ). The study focused on those located in Harare, the capital city. The SMEAZ record showed a total number of 925 self-employed tax payers located in Harare hence that was the accessible population. The study assumed that when gathering information it would be accessed from either the owner of the business or the manager of the business since both had knowledge on issues under study. The study population was therefore all owners of registered SMEs or top managers that made payment decisions in these organizations.

### Sample size calculation

The sample size for this study was calculated using the formula below by Taro (1967).

$$n = N / 1 + N(e)^2$$

Where:

N=population size

n= sample size

e= sampling error or precision level

$$n = 925 / 1 + 925(0.05)^2$$

$$n = 279$$

The sample size for this study was, therefore 279, giving a sample size of approximately 30%. The sample of 30% of the total self-employed registered under SMEAZ in Harare could be considered to yield results that are representative of the registered SMEs in Harare. This sample size can be considered as adequate as supported by Payne (1983) who contends that, a research that involves 5-10% of the total population is objectively representative of the whole especially where the population size is less than 10 000. This number is divided into various industries as shown in Table 3.

### Data collection tools and unit of analysis

The unit of analysis was those who make decisions to pay for expenses in SMEs in Zimbabwe. Data was collected using a structured questionnaire. The questionnaire had the advantage that anonymity was ensured since data that directly linked individuals with responses were not required (Kumar, 2011). Collection dates were agreed with the respondents and prior to collection date and the researchers reminded the respondents occasionally to complete their questionnaires. The researchers provided contacts in case of the need to clarify on unclear issues related to questionnaires.

### Measures

A five point likert scale with answer options ranging from 1- strongly agree up to 5 –strongly disagree was used to collect responses to statements intended to measure the constructs mental accounting, tax compliance, perceived trust in the revenue office, perceived power of the revenue office.

### Mental accounting

This was measured using mental accounting scale by Muehlbacher and Kirchler (2013). From the scale, four statements were adopted for this research. These statements are (i) When I earn money, I automatically think about the incurring tax due, (ii) I know relatively well how much money I have to put aside for incurring taxes, (iii) I think it is essential to put aside the necessary amount of money to pay the tax due and (vi) I never really look upon the money I pay as income tax as my money. Tax compliance was put into two components which are voluntary compliance and enforced compliance. A scale by Hartner et al. (2009) was used to measure both components. The statements used to measure voluntary compliance were: (i) I pay my tax as a matter of course and (ii) I would also pay my tax when there are no tax controls. The statements used to measure enforced compliance were (i) I feel that I am forced to pay tax and (ii) I pay tax because the risk of being checked is too high.

### Perceived trust in the revenue office

This was measured by a scale adapted from Hartner et al. (2009). The scale has three statements which are (i) Zimbabwean revenue office treats tax payers in a respectful manner, (ii) Zimbabwean revenue office is fair in collecting taxes, and (iii) The revenue office in Zimbabwe is trustworthy.

### Perceived power of the revenue office

This was also measured by a scale adapted from Hartner et al. (2009). Three statements were adapted from these scholars which are (i) The Zimbabwean revenue office is able to uncover most tax evasions that occur because of its expert knowledge, (ii) The Zimbabwean revenue office has extensive powers to force citizens to be honest about tax, (iii) The Zimbabwean revenue office fights tax criminality efficiently. Two logistic regression equations were applied to answer the hypotheses:

$$FTC = \beta_0 + \beta_1 MAP + \beta_2 PTTA + \beta_3 PPTA \quad (1)$$

Where VTC = Voluntary Tax Compliance

MAP = Mental Accounting Practice

PTTA = Perceived Trust in Tax Authorities

PPTA = Perceived Power of Tax Authorities

$$FTC = \beta_0 + \beta_1 MAP + \beta_2 PTTA + \beta_3 PPTA \quad (2)$$

Where FTC = Forced Tax Compliance

MAP = Mental Accounting Practice

PTTA = Perceived Trust in Tax Authorities

PPTA = Perceived Power of Tax Authorities

### Ethical considerations

Babbie (2008) identifies ethics as dealing with the interaction of the researcher and the respondents. Participation in the study is voluntary as respondents are informed of the purpose of the study and confidentiality is assured by not disclosing the identity of the respondents. Those respondents who feel like withdrawing midway through the interview are free to do so. No incentives of whatever form are given to participants to induce them to participate. The study ensures honesty, objectivity, integrity and respect in reporting data.

**Table 1.** Demographic profile of respondents.

<b>Position in the organization</b>	<b>Manager</b>	<b>Owner</b>		
Number of Respondents	3.30%	96.70%		
<b>Gender of Respondents</b>	<b>Male</b>	<b>Female</b>		
Number of Respondents	66.70%	33.30%		
<b>Marital Status of respondents</b>	<b>Married</b>	<b>Divorced</b>	<b>Widowed</b>	<b>Single</b>
Number of Respondents	68.10%	5.60%	5.90%	20.40%
<b>Highest level of education</b>	<b>Ordinary level</b>	<b>Advanced level</b>	<b>Diploma</b>	<b>Degree</b>
Number of Respondents	27%	26%	25.60%	24.40%

Source: Study results (2017).

## FINDINGS AND DISCUSSION

### Response rate

A total of 279 questionnaires were sent out. Out of these, 270 were returned and were eligible for usage in the study. The other 9 were either not returned on time (5 questionnaires) or they were returned on time but with errors (4 questionnaires) which automatically deemed them ineligible for usage in the research. The response rate can be considered to be high enough to render the data gathered representative of the population. This is supported by Payne (1983) who contends that, a research that involves 5-10% of the total population is objectively a representative of the entire population if the population size is less than 10,000. There was willingness amongst respondents to participate, showing that the subject under study is of great interest to the targeted population.

### Demographic profiles of respondents

The first section of the question gathered data about the demographic profiles of the respondents. This was important as it could indicate the demographic composition of the participants in SMEs in Zimbabwe. This knowledge might be useful to policy makers. The findings are as shown in Table 1.

The data in Table 1 shows that 96.7% of the respondents who constitutes the majority of the respondents were owners of the businesses. This was a true reflection of the nature of the self-employed who were usually in business for themselves intending to benefit themselves and their families and hence solely ran the businesses themselves. There were, however, those few owners who are in business but had other engagements. These were represented by their agents, managers, and the constituted 3.3% of respondents who answered questionnaires on behalf of owners, as these made decisions on behalf of the owners.

### Gender

As can be deduced from Table 1, males constituted the majority (66.7%) of self-employed, whereas women constitute the minority (33.3%). Even though any of the genders can be self-employed, it is a male dominated sector. This can be a result of the historical social and structural hindrances that affect the gender mix. Grigone and Toma (2014) noted that women often have less time to start a business because of the need to look after the house, raising children and taking care of the family.

### Marital status

As indicated in Table 1, 68.1% of the respondents were married, 20.4% were single, and 5.6% were divorced. This could indicate reluctance of those single and divorced to start their own business initiatives probably because of the lack of many responsibilities.

### Highest level of education

The results of the study as shown in Table 1 show that those with degrees constituted 24.4%; those who ended at diploma level were 25.6%; those that ended at Advanced level were 23%; those who ended at Ordinary level 27%. The results indicated a high literacy rate since every respondent had the basic Ordinary level of education which made them able to read and write and therefore able to understand the issues under study. This is consistent with the report by The African Economist (2013) that states that Zimbabwe has a literacy rate of above 90%.

### Findings related to the study objectives

#### *The influence of Mental Accounting on tax compliance*

The first objective of this study was to examine the

**Table 2.** Regression results for H1(a).

Variable	Coefficient	t	p- value
Mental accounting	0.4209516	22.31	0.000

Dependent Variable: Voluntary compliance.  
Source: Study results.

**Table 3.** Regression results for H1(b)

Variables	Coefficient	t	p- value
Mental accounting	-0.3470923	-20.69	0.000

Dependent Variable: Enforced Compliance.  
Source: Study results.

relationship between mental accounting and the two forms of tax compliance (voluntary and enforced). To address this objective two hypotheses were crafted which are:

H1(a): There is a positive relationship between mental tax accounting and voluntary tax compliance.

H1(b): There is a negative relationship between mental accounting and enforced compliance.

To test these hypotheses a logistic regression model was estimated. The results are shown in Table 2 and 3.

As depicted in Table 2 mental accounting of taxes has a significant positive impact on voluntary compliance. Therefore to increase voluntary compliance the results suggest the need to educate the self-employed tax payers to take payment of taxes as part of their mental accounting practices. These results are in line with findings of Muehlbacher and Kirchler (2013) conducted in Austria and Duggan (2016) conducted in New Zealand who established that mental accounting of tax is positively related to attitudes toward taxes and self-reports about tax compliance. The results of the logistic regression tested for H1(b) as shown in Table 2. It can be deduced from the results in Table 3 that mental accounting of tax has a significant negative relationship with enforced compliance. It could therefore be inferred that creating an environment where tax payers appreciate the need to pay taxes so that they factor this in their mental accounting practices would result in a reduced need for enforced compliance and therefore no need for relying on punitive measures in the SMEs sector.

### **The influence of perceived trust in revenue office on tax compliance**

The second objective sought to examine the influence of perceived trust in revenue office on tax compliance. To address this objective two hypotheses were crafted

which are:

H2(a): There is a positive relationship between perceived trust in tax authorities and voluntary tax compliance.

H2(b): There is a negative relationship between perceived trust in tax authorities and enforced compliance.

To test these hypotheses a logistic regression model was estimated. The results are shown in Table 4 and 5. As shown in Table 4, perceived trust in tax authorities has a significant positive impact on voluntary compliance. It can therefore be deduced that to increase voluntary compliance in Zimbabwe, the revenue authorities as well as the government of Zimbabwe should work towards building trust with the self-employed tax payers through transparent use of tax revenue, respect and fair treatment of tax payers. These findings are in line with findings by Kirchler and Wahl (2010) in Austria. The effect of trust on voluntary tax compliance was also reported to be significant in a study by Muehlbacher et al. (2011) as well as by Wilks and Pacheco (2014) in Portugal to establish the effect of trust in tax authorities on voluntary compliance and the results were found to be significant.

It can be deduced from table 5 that there is a significant negative relationship between perceived trust in tax authorities and enforced compliance. This is consistent with the results from Muehlbacher et al. (2011) who conducted a study amongst self-employed tax payers in Austria, Czech Republic and United Kingdom and found a negative impact of trust on enforced compliance. In contrast, Fischer (2008) found no effect of trust on enforced compliance. The current study helps clarify these contradictory findings. These results suggest that to reduce enforced compliance which results in a hostile environment between tax authorities and self-employed tax payers (making it a less favourable form of compliance), trustworthiness of the tax authorities should be enhanced.

**Table 4.** Regression results for H2(a).

Variable	Coefficient	t	p- value
Trust	0.6352899	29.82	0.000

Dependent Variable: Voluntary compliance.  
Source: Study results.

**Table 5.** Regression results for H2(b).

Variable	Coefficient	t	p- value
Trust	-0.4975382	-22.61	0.000

Dependent Variable: Enforced compliance.  
Source: Study results.

**Table 6.** Regression results for H3(a).

Variable	Coefficient	t	p- value
Power	0.6344466	16.25	0.000

Dependent variable: Enforced compliance.  
Source: Study results.

**Table 7.** Regression results for H3(b).

Variable	Coefficient	t	p- value
Power	-0.7807466	-17.74	0.000

Dependent variable: Voluntary compliance.  
Source: Study results.

### The influence of perceived power of revenue officers on tax compliance

The third objective sought to examine the influence of perceived power of revenue officers on tax compliance. To address this objective two hypotheses were crafted which are:

**H3 (a):** There is a positive relationship between perceived power of tax authorities and enforced compliance.

**H3 (b):** There is a negative relationship between perceived power of tax authorities and voluntary compliance.

To test these hypotheses a logistic regression model was estimated. The results are shown in Table 6 and 7. It can be deduced from Table 6 that perceived power in tax authorities is positively related to enforced compliance. These findings are in line with previous studies (Gangl et al., 2015; Muehlbacher and Kirchler, 2010; Muehlbacher et al., 2011; Wahl et al., 2010) who concluded that perceived power of tax authorities strongly determines enforced compliance. This implies that if tax authorities

want to enforce compliance among those that are not voluntarily willing to pay their taxes, they can do this through coming up with policies and procedures that make the payment of taxes easily enforceable.

As indicated in Table7 there is a significant strong negative relationship between perceived power of tax authorities and voluntary compliance. To increase voluntary compliance, therefore, reliance on the power of tax authorities should be reduced and trust in tax authorities should instead be enhanced. Other studies by Wilks and Pacheco (2014) focusing on Portuguese students supports these findings as they concluded that power of tax authorities is significant in enhancing enforced compliance and not voluntary compliance. Muehlbacher et al. (2011) similarly noted a negative relationship between power of tax authorities and voluntary compliance. The hypotheses test results are summarized in Table 8.

### Conclusions

The study findings support the few previous studies and

**Table 8.** Summary of hypotheses tests results.

Hypotheses		Accepted or rejected
H <sub>1(a)</sub>	There is a positive relationship between mental tax accounting and voluntary tax compliance	Accepted
H <sub>1(b)</sub>	There is a negative relationship between mental accounting and enforced compliance	Accepted
H <sub>2(a)</sub>	There is a positive relationship between perceived trust in tax authorities and voluntary tax compliance.	Accepted
H <sub>2(b)</sub>	There is a negative relationship between perceived trust in tax authorities and enforced compliance.	Accepted
H <sub>3(a)</sub>	There is a positive relationship between perceived power of tax authorities and enforced compliance.	Accepted
H <sub>3(b)</sub>	There is a negative relationship between perceived power of tax authorities and voluntary compliance.	Accepted

confirm a significant strong positive relationship between mental accounting for taxes and voluntary compliance. In contrast a negative relationship was established between mental accounting and enforced compliance. This means that as mental accounting practices increase among the self-employed tax payers, enforced compliance is reduced since mental accounting encourages voluntary compliance. The study therefore, concludes that there is a significant strong positive relationship between mental accounting and voluntary compliance and a significant negative relationship between mental accounting and enforced compliance. The findings in this study indicated that there was a strong positive relationship between perceived trust in tax authorities and voluntary compliance. In contrast the effect of perceived trust on enforced compliance was found to be significantly negative. The study concluded that there is a strong significant positive relationship between perceived power of tax authorities and enforced compliance was noted. However perceived power of tax authorities showed a strong negative impact on voluntary compliance.

### Recommendations

The tax authorities could treat tax payers as clients rather than as offenders when dealing with them. This would improve the relationships that exist between the tax payers and tax authorities and therefore increase the mutual trust and in turn increase voluntary compliance. Tax authorities have to assure the tax payers that the money is channelled towards public welfare, rather than corrupt expenditure by the government. This would result in increased trust in tax authorities through transparency. This would increase voluntary compliance. For those tax payers who do not comply, a mix of power strategies such as audits and fines could be used to ensure enforced compliance.

### Future studies

The study focused on SMEs located in Harare, and for further research it would be crucial to focus on SMEs in

other towns and cities. Further studies that broaden the scope of determinants of tax compliance, that are inclusive of a broader scope of participants to include other stakeholders like government representatives and tax administrators, that apply more rigorous data analysis methodologies like econometrics are recommended with a view of coming up with a policy framework to enhance tax compliance in Zimbabwe.

### CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# **Financial accountability mechanisms in local governments in Uganda: a case of Kabale District Local Government**

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**The purpose of the study is to present financial accountability mechanisms in local governments, with reference to Kabale district local government. A cross-sectional research design, which used both quantitative and qualitative approaches to collect and analyze data, was adopted. Both simple random and purposive sampling techniques were used to select 117 respondents from 174 subjects. Questionnaires and personal interviews were used to collect data from respondents. Frequencies and percentages were used to analyze quantitative data, while direct quotes from interviews conducted among key informants formed the basis for qualitative analysis. Quantitative analysis was aided by software for document analysis (SPSS V 20.0). The study found out that service delivery was the most commonly used financial accountability mechanism, followed by financial reporting, expenditure control and budget. The paper therefore, concluded that service delivery is the most used mechanism of financial accountability, though the district's local budget seemed unclear on reflecting the priorities of the local people. This paper suggests that the local government should ensure that the district's budget demonstrates community preference; salaries and wages should be paid in accordance with the district's approved budget; expenditures on development should always be as per the approved budget, and the mode of financial reporting, particularly on liabilities should be standardized.**

**Key words:** Financial accountability, expenditure control, financial reporting, service delivery, budget.

## **INTRODUCTION**

In government, financial accounting entails the recording, communicating, summarizing, analyzing and interpreting financial statement in aggregate and in details (Onuarah and Appah, 2012). It is required that government accounts meet internal management requirements while

providing the public with a window on government operations. Achua (2009) explains that government financial reports would have been prepared with the objective of providing full disclosure on a timely basis of all material facts relating to government financial position

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and operations. However, many public sector organizations seem to undermine this practice. For instance, Kiyemba (2018) shows incidences of ineffective budgetary controls that are fueled by fraud and corruption, and personal interests over community preferences in Wakiso district. Overseas Development Institute (2018) shows how Ministry of Finance introduced a Budget Transparency Initiative to promote accountability and service delivery in Uganda. However, sustainability of the initiative failed due to weak coordination of activities and failure to understand expected roles and expectations between central and local governments. Government of Uganda has over the years introduced a number of reforms aimed at enhancing transparency, accountability of public resources and improved service delivery. The government adopted the practice of open and transparent budget consultative process, which was further enacted by Public Finance Management Act 2015. Workshops have been organized to consult all stakeholders (development partners, local governments, central government ministries and departments) at National and local government levels to guide in the process of priority setting and resource allocation (MOFPED, 2017). One of the key milestones in reforming public finance management in Uganda has been the decentralization of the payroll management. However, the limited internet infrastructure and technical capacity to operate the IFMS are still a challenge (Munyambonera and Lwanga, 2015). Kabale district local government formulates her Budget Framework Paper by involving all stakeholders and continues to emphasize decentralized and participatory development planning and budgeting process as stipulated in the Local Government Act CAP 243 under section 36 (3). The Local Government Budget Framework Paper outlines district interventions for social and economic development in the fiscal year. Kabale district local government suffers from inadequate local revenue collections due to political influence and poor administration and fluctuating indicative planning figures from central government (Kabale District Local Government, 2015), which have inched on the district's financial accountability. While the (Auditor General, 2017) does not indicate incidences of poor financial accountability, cases of inadequate controls surrounding management of domestic arrears and understaffing at the district remain critical and unattended to. Despite the many years of decentralization policy in Uganda, and numerous efforts to reform the local government system (Auditor General, 2017; Eton et al., 2018:106), financial accountability at local government remains a challenge in Uganda. It's upon these bases therefore the researchers conducted this study.

## LITERATURE REVIEW

From the theoretical perspective, financial accountability

was discussed in view of the Principal-agent theory. The principal, who are the citizens grant some authority to the agents (politicians and civil servants) to act on their behalf (Shah, 2007; Agwor and Akani, 2017; Gailmardy, 2012). The principal-agent theory relates the customer (principal), who pays for services or goods, and the agent. More than often, however, the agent least does what the principal expects (Hlavacek and Hlavacek, 2006), yet the principal is limited in his ability to monitor and judge the contractor's input and output (Keil, 2005), which leads to mistrust and can only be avoided under high monitoring costs. In ideal situations, the public empowers government officials to promote public welfare using public resources. However, more often than none, government officials serve their own interests, which jeopardize service to the public. According to (Berner and Smith, 2004) accountability is interpreted as the ability of the principals (public) to question the conduct and behavior of the agents, and to impose sanctions where such conduct or behavior falls short of the requirement. This would be demonstrated in the ballot box on the side of the politicians, but how about the civil servants? In growing democracies, the agents override the principals, thus denying them full participation in their demand for accountability of the actions of the agents (Cabannes, 2005) to the point of denying them full participation through information exchange. Principals only disseminate information to advance their own self-interests and to maximize their own utilities (United Nations, 1999). According to Birskyte (2013), the public attempts to demand accountability from politicians and civil servants however, a wider range of principals lack the capacity to hold agents accountable. This research argues that while the public can be involved in demanding accountability from politicians and civil servants, the public is also driven by personal interests, political patronage, resource shortage and foreign backings. In turn, the agents do not consider the targets of the constituent principals. In other words, the principal-agent-theory cannot apply in dynamic situations where power is not directly delegated. As people continue to look to politicians for cash in exchange for their votes, this implies a decrease in their legality to demand accountability (United Nations, 2005). Since resources are in the hands of an elected government, people must be corrupted by accepting bribes for their votes, which constrains effectiveness and delivery of public goods.

## FINANCIAL ACCOUNTABILITY

Accountability is generally defined as accepting and meeting one's personal responsibilities, being and feeling obligated to another individual as well as oneself, and having to justify one's actions to others (Wilson et al., 2010). Accountability has frequently been presented as rational practice to ensure responsibility by individuals and institutions, which should be implemented in all civil

societies, economic institutions and organizations (Agwor and Akani, 2017). He noted that the traditional tools of accountability are often considered by non-profit organizations as unnecessary formal tasks and excessive bureaucracy, which can have important consequences both organizationally and managerially. According to (Onuarah and Appah, 2012), accountability focuses on the extent to which feedback recipients perceive they are responsible for, utilizing feedback information for development. A sound system of public expenditure management needs to take into account the wider values and requirements of society. Accountability, transparency, predictability and participation are important instruments for sound budget management, but also have an intrinsic value, and are generally seen as the four pillars of good governance. If budget managers do not comply with parliament's authorizations, or if public funds are used for private purposes, it is doubtful whether either aggregate fiscal discipline or efficient resource allocation, or both, will be achieved. Financial accountability is about assuring its stakeholders regarding the use of public resources (stewardship) as well as to underpin decision-making about how to allocate scarce resources like time, personnel, space, equipment and money (Doussy and Doussy, 2014). The allocation of resources may affect the entire operation and success of an organization, which often hinges on the quality of its financial management. Thus public entities have to provide information about financial activities to its stakeholders in order to discharge financial accountability. Financial accountability is a very important component of the public sector financial management process.

## **Financial accountability mechanisms**

### ***Expenditure controls***

There is a tendency for spending on wages and salaries, goods and services and other items of recurrent expenditure to be higher than the approved budget, and for spending on the development budget to be lower than the approved amounts. The under spending in development expenditure is mainly due to capacity limitations, weak project implementation and possibly a lack of reporting on execution of donor-funded projects (Cabannes, 2005). Overspending in the recurrent budget can be attributed to weaknesses in expenditure controls, including inadequate commitment controls. The lack of data integrity is a big issue, both for aggregate and individual budget items, thus reducing the overall quality of financial reports. Credibility in public expenditure is assessed by comparing aggregate expenditure out-turn to original approved budget, compositions of expenditure out-turn to original budget and aggregate revenue out-turn to original approved budget (PNG Government, 2015). However, Hladchenko (2016) advises that when the resource envelope allows, the government should

shift its policy focus towards improving the quality of public expenditure. Such restraints normally arise from the weak budget forecast.

Annual financial reports, which are a reflection of final budget outcome, may indicate an overall level of budget execution which was in line with the initial approved budget. For example, a very small difference between original and executed budget can be explained by the supplementary budget that was adopted in-year and helped reallocate expenditure among sections (Dunleavy et al., 2006). This helps to increase the overall level of budget execution. Without this supplementary budget, most public entities operate under-execution of the budgets. Similarly, Pelizzo and Stapenhurst (2013) noted that it is possible for the recurrent budget to appear overspent while the development budget is regularly under-executed. These two items broadly compensate at the overall level. At the end of the year, departments tend to transfer lapsing funds into trust accounts, which results into a recorded increased level of budget execution even though these transfers represent no more than an accounting transaction between different government accounts (Lytvynchuk, 2014). Effective expenditure control is attained when the extent to which the composition of expenditures differs from the original approved budget is compared, and that public entities can predict the extent to which the budget is predictable, reliable and reflects the implementation of stated public policy (Pelizzo and Stapenhurst, 2013; Pillay, 2013). This suggests that documents containing a large amount of detailed information with vast accompanying narrative should be provided. In a related view, Miller (2012) adds that any discrepancies in the data for total revenues and expenditures should be presented in the documents. A lack or shortage of information on important fiscal indicators such as the debt stock, financial assets, fiscal risks and tax expenditures, in addition to a medium-term budget framework impinges on the level of financial accountability. Moreover, presenting the development budget for each agency in the same section as the current budget, and modifying the definitions of the development budget would reflect genuine capital expenditure (Shah, 2007).

### ***Financial reporting***

Financial reporting plays a major role in fulfilling government's duty to be publicly accountable in a democratic society. Financial reporting is used in assessing accountability by comparing actual financial results with the legally adopted budget, assessing financial condition and result of operations, assisting in determining compliance with financial laws and assisting in evaluating efficiency and effectiveness (Wang, 2013). The accounting profession through oversight bodies, developed certain international rules and guidelines on

how financial information is treated and communicated so that measurement and presentation are less subjective (Kumar et al., 2012). These guidelines and rules for preparing financial statements are commonly known as Generally Accepted Accounting Principles (GAAP), The International Accounting Standards Board (IASB), the International Accounting Standards (IASs) and International Financial Reporting Standards (IFRSs). These standards start with a conceptual framework which anchors financial reports to a set of principles such as materiality (the degree to which the transaction is big enough to matter) and verifiability (the degree to which different people agree on how to measure the transaction) (Beyer and Guttman, 2012). The standards establish which resources and obligations should be recorded as assets and liabilities, which changes in assets and liabilities should be recorded, when these changes should be recorded, how the recorded assets and liabilities and changes in them should be measured, what information should be disclosed and which financial statements should be prepared (Li, 2005). That is, the standards prescribe recording and reporting practices that are deemed to be acceptable when reporting on the financial affairs of an entity.

Today, all public institutions in Uganda are adhering to IFRSs to ensure the same understanding of the information by both the preparers and users of that information. The enforcement of accounting standards improves the quality of financial reporting (Auditor General, 2017). Unfortunately, literature recognizes that measuring the quality of financial reports like the financial statements is problematic especially because different users may perceive the usefulness of information very different from each other (Indriasari, 2008; Rabrenovic, 2009; Hladchenko, 2016). This is associated with the fact that most of the stakeholders will not have the ability or need to analyze the financial statements in detail or test the compliance with accounting standards. Therefore, concentrating on characteristics like understandability, comparability, verifiability and timeliness (Kedia and Philippon, 2003), which enhance faithfulness and representation to citizens, politicians, donors, government and NGOs; is far better. Stakeholders like CSOs and community members could be probably only interested in whether the statements are trust worthy, that no corruption took place, the budget were complied with and that the organization in question is in a position to provide value for money (Graham et al., 2006). Therefore, financial statements must be transparent and easy to understand to enable making informed decision.

While the definition of financial accounting system points to set of procedures from data recording to financial reporting in order to answer budget implementation, financial accounting system can be measured by five dimensions: the accounting of cash, the accounting procedures, cash outlays, the accounting procedures assets, the accounting procedures in cash, and the

presentation of financial reports. In government however, financial accountability statements are about accounting standards, which are structured to report on the financial position reporting entity (Elliot and Elliot, 2012). This suggests that emphasis of reporting is laid on accountability dimension, presentation dimension and disclosure. As the organization processes and reviews its accounting material, a systematic approach to the identification, analysis, evaluation, endorsement and periodic review of decisions taken involving such material is provided, which spans a number of accounting areas. However, at the end of the day, the final financial statements will include amounts based on judgments, estimates and assumptions by management (South African Institute of Chartered Accountants (SAICA), 2012).

A consolidated local government financial statement is prepared annually that includes full information on revenues, expenditure and financial assets including revenue arrears. These annual statements however, do not provide a full reporting on liabilities. They do not provide any information on expenditure arrears or accounts payable (Kabale District Local Government, 2015). Under the cash accounting system the source document for accounting entries is the payment voucher coupled with the electronically generated cheque or other payment instruction. Entries are dated using the date on the payment instrument. It is important to note that auditing is a crucial component of most modernist conceptions of accountability since it legitimates the information on which formal, financial accountability rests (Shulman et al., 2013). The fundamental role of an auditor is to provide independent assurance to external users that a financial report of an entity is accurate and reliable.

### **Service delivery**

A service is an activity or a series of activities of more or less intangible nature that normally, but not necessarily, takes place in interactions between the customer and service employees and/or systems of service providers, which are provided as solutions to customer problems (Bajo et al., 2017). Service delivery can be taken to be an outcome of performance depending on the context in which it is used (Yeo and Neal, 2004). According to (Birskyte, 2013), service can be expressed in terms of capacity to deliver desired services and from which customers get satisfaction. A service delivery gap is that gap between the established delivery standards and the actual service delivered (Goncalves, 2013). It is an inconsistency between service design/quality specifications and the actual service quality by the service delivery system. Effective engagement between citizens, service providers and elected representatives is essential to democratic service delivery.

Service delivery refers to programs or services that are

provided either to the general public or to specifically targeted groups of citizens, either fully or partially using government resources. This includes services such as education and training, health care, social and community support, policing, road construction and maintenance, agricultural support, water and sanitation, and other services (Salahu, 2012). He observes that service delivery excludes those services provided on a commercial basis through public corporations. Similarly, (Public Expenditure and Financial Accountability (PEFA), 2016) points out that service delivery excludes policy functions, internal administration, and purely regulatory functions undertaken by the government, although performance data for these activities may be captured for internal management purposes. It also excludes defense and national security (Agwor and Akani, 2017).

Quality of service delivery has emerged as the most significant strategy in ensuring the survival of organizations and also a fundamental route to business excellence as well as extending market share of health care organizations. Service provision that is de-linked from citizen-influence and democratic decision making is unlikely to deliver quality services for the poor (Omolaye, 2015). For meaningful contributions, the poor require the ability and capacity to ask questions and, sufficient information of their right and entitlements, service options, local and national budgets, and the systems to address when decisions are taken undemocratically or when services are of poor quality. Local governments are assumed to be performing if the projects and services meet the demands of the citizens in the local areas (Agwor and Akani, 2017).

Shah (2007) insists that service delivery has to be communicated over and over again to everyone. Employees at all levels must be aligned with a single vision of what the organization is trying to accomplish. Thus, effective internal communications is the requisite for integration and harmony in the service organizations activities and quality. Public Expenditure and Financial Accountability (2016) also emphasizes that the goal of any social service organization is to improve the results of the target population in some way by providing the right type of services and by providing them in an appropriate and adequate way.

## **Budget**

Budget is a plan of financial operation embodying an estimate of proposed expenditures for a given period of time and the proposed means of financing them. In a much more general sense, budgets may be regarded as devices to aid management in operating an organization more effectively. Governments build budgets to demonstrate compliance with laws and to communicate performance effectiveness (Wilson et al., 2010). It is worth noting that financial accounting and management

accounting cannot be so neatly compartmentalized in the public sector, where management accounting refers to budgeting and control, rather than accounting solely in the service of managers. The budget is an expression of public policy and political preferences (Tsurkan et al., 2016). It is an instrument of fiscal policy on revenue and spending to achieve macroeconomic objectives. It provides benchmarks for performance measured partly by the accounting system. Given their close relationship, it is often difficult to tell where budgeting ends and accounting begins. They reinforce each other in demonstrating and discharging fiscal accountability to the government's stakeholders, who are more numerous and diverse than the owners of a firm.

Budgeting is an important mechanism for financial planning and management and, as a cyclical decision-making process, it allows for the achievement of organizational priorities and objectives through limited fiscal resources. The correct application of budgeting can contribute significantly to greater efficiency, effectiveness and accountability within any organization if a level of synergy exists between the policy direction and the fiscal framework (Berner and Smith, 2004). Being part of the control environment relating to the efficient, effective and economic utilization of resources, budgets are also an indistinguishable part of the broader planning and policy environment. Similarly, (Mikesell, 2007) expresses that a budget's importance in a democratic setting should be aligned to both the legislative and executive management environments and emphasizes publicity, amongst others, as a core principle of any budget (Neblo et al., 2010). In essence, publicity requires budget openness and transparency during all the stages of the budgeting process, which include executive recommendation, legislative consideration and budget execution.

In budgeting, this means uniting administrators, who have information on municipal finance and budgetary processes, with their constituents, who have information on their own preferences (Kim et al., 2010). This suggests that combining of information leads not only to new information but also to new understanding. The budget measures the extent to which aggregate budget expenditure outturn reflects the amount originally approved, as defined in government budget documentation and fiscal reports (Omolaye, 2015). He notes that aggregate expenditure includes planned expenditures and those incurred as a result of exceptional events such as armed conflicts or natural disasters; and expenditures financed externally by loans or grants should be included. However, if amounts are held in suspense accounts at the end of any year that could affect the scores if included in the calculations, they can be included. The budget recognizes that it is prudent to include an amount to allow for unforeseen events in the form of a contingency vote, although this should not be so large as to undermine the credibility of the budget (Salahu, 2012). Where part of the budget is protected

from spending cuts for either policy (for example, poverty reduction spending) or regulatory reasons (for example, compulsory welfare payments), this will show up as a composition variance (Berner and Smith, 2004). Assessors are requested to report on the purpose and extent of protected spending in the narrative.

Accurate revenue forecasts are a key input to the preparation of a credible budget. Revenues allow the government to finance expenditures and deliver services to its citizens. Overly optimistic revenue forecasts can lead to unjustifiably large expenditure allocations that will eventually require either a potentially disruptive in-year reduction in spending or an unplanned increase in borrowing to sustain the spending level (Public Expenditure and Financial Accountability (PEFA), 2016). On the other hand, undue pessimism in the forecast can result in the proceeds of an over-realization of revenue being used for spending that has not been subjected to the scrutiny of the budget process (Mikesell, 2007). As the consequences of revenue under-realization may be more severe, especially in the short term, the criteria used to score this indicator allow comparatively more flexibility, when assessing an over-realization.

A robust classification system allows transactions to be tracked throughout the budget's formulation, execution, and reporting cycle according to administrative unit, economic category, function/sub function, or program (Public Expenditure and Financial Accountability (PEFA), 2016). The budget should be presented in a format that reflects the most important classifications. The classification should be embedded in the government's chart of accounts (the accounting classification) to ensure that every transaction can be reported in accordance with any of the classifications used. In the same line, Tsurkan et al. (2016) argue that the budget and accounting classifications should be reliable and consistently applied, providing users with confidence that information recorded against one classification will be reflected in reports under the other classification. In view of national budgets, a set of budget supporting documents must be provided by the executive to the legislature for scrutiny and approval. These documents provide a complete picture of central government fiscal forecasts, budget proposals, and outturn of the current and previous fiscal years (Mikesell, 2007). The arrangements for providing transfers from central government to sub national governments and the timeliness of information on those transfers ought to be captured. Financial reporting by sub national governments and fiscal risks to central government from sub national governments are addressed to governments through their budgets, or through conditional (earmarked) grants to sub national governments to implement selected service delivery and expenditure responsibilities (Salahu, 2012). The overall level of grants is usually determined by policy decisions at the central government's discretion or as part of constitutional negotiation processes. However, clear criteria for the

distribution of grants among sub national governments are needed to ensure a locative transparency and medium-term predictability of funds available for planning and budgeting of expenditure programs by sub national governments (Edeme and Nkaku, 2017). He further clarifies that every fiscal transfer from central government to the relevant sub national governments should be taken into consideration.

Legislatures play a critical role in the management of public finances. As part of their budget decision-making responsibilities, legislatures approve the national budget and subsequently provide oversight as the executive implements the budget (Wilson et al., 2010). The challenge that remains with local government budgets is timeliness of reliable information provided to sub national governments on their allocations from central government for the coming year. It is crucial for sub national governments to receive information on annual allocations from central government well in advance of the completion (and preferably before commencement) of their own budget-preparation processes. Information on transfers to sub national governments' budgets should be regulated by the central government's annual budget calendar, which should provide for reliable information on allocations early in the cycle (Public Expenditure and Financial Accountability (PEFA), 2016).

## METHODOLOGY

The study adopted a cross-sectional research design. This type of research design measures differences between or from among a variety of people, subjects, or phenomena rather than a process of change. Data was collected in a single interface with respondents and a report was produced. Quantitative approaches were used to collect and analyze data on financial accountability constructs (expenditure control, financial reporting, service delivery and budget). The target population included local government staff, elected leaders, and civil society leaders identified from Kabale district local government (central division, town councils, sub counties). These categories of the population were contacted because they are part of financial accountability in addition to having enough experiences on financial accountability in the district. The study comprise of a total of 174 study units, constituting 100 staff, 42 elected leaders, and 32 civil society leader. The target population was stratified into three strata that is staff, elected leaders, and civil society leaders. Proportional allocation was employed to determine the number of participants to be taken from each stratum. This resulted into taking 67 staff, 29 elected leaders, and 21 civil society leaders, which was equivalent to a sample size of 117. Purposive sampling was used to select the CAO, District chairperson, and town clerks while simple random sampling was used to select the staff, elected leaders, and civil society leaders. The CAO, District chairperson, and town clerks were purposively selected because of their vast knowledge of public finance management and accountability expectations. Questionnaires and interview methods were used to collect primary data. The CAO, district chairperson, and town clerks were interviewed while the rest of the staff, elected leaders, and civil society leaders were served with questionnaires. A structured questionnaire with close-ended questions was designed. The items were developed from literature review. The questionnaire had two sections that is a background

section and a basic section. The background section had 7 items covering background characteristics. The basic section, which was directly related to financial accountability mechanisms had four sub-sections. Expenditure control had 6 items, financial reporting had 8 items, service delivery had 7 items while budget had 7 items. All the items on financial accountability mechanisms were scale-items, measured on a 5-point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Collected data was sorted and entered into SPSS version 20. The software was used to help in generating percentages of counts for each item used in the questionnaire. The researcher summarized percentage data into *disagreement* (an aggregate of strongly disagree and disagree), *agreement* (an aggregate of strongly agree and agree) and '*not sure*'.

## RESULTS

### Background characteristics

Participation according to gender indicates that 78.9% were male while 21.1% were female. In respect to age distribution, 43.1% belonged to (40 - 49) years of age and constituted the majority, 27.5% belonged to (30 - 39) years, 17.4% belonged to (50 and above) years while 11.9% belonged to (20 - 29) years and constituted the least participation, which suggests that most of the participants were adults with a high degree of reasoning and maturity, which were essential in the study. Regarding their marital status, In line with marital status, 75.2% indicated to be married and were the majority, 19.3% were single while only 6 participants representing 5.5% indicated the "others" option. In terms of the highest level of education revealed that 58.7% were tertiary graduates, 24.8% were university graduates while 16.5% indicated secondary as their highest level of education. According to their experience in local government activities, 52.3% had (5 -9) years' experience with the local government, 26.5% had not worked with the local government for more than 5 years while 21.1% had worked with the local government for 10 years and over.

### Financial accountability mechanisms used in Kabale district local government.

The study investigated three mechanisms of ensuring financial accountability in Kabale district local government. These were expenditure control, financial reporting, service delivery and the budget. Table 1 presents the details of the findings. Bringing to light the aspect of expenditure control as a mechanism of ensuring financial accountability in Kabale district local government, 89.9% that the district local government's resource envelope is adequate enough to allow for quality public expenditure, while 85.3% confirmed that the district's overall budget execution is always in line with the official approved budget and the district council is committed to spending within the budget (71.5%).

Actually, Kabale is a stop-off point for tourists to Lake

Bunyonyi and the two parks famous for mountain gorilla tracking: Mgahinga national park and Bwindi impenetrable national park. In moderate presentation, 64.2% confirmed that the district's financial reports always indicate a very small difference between the original and the expected budget, 62.4% confirmed that the money spent on development is lower than the approved budget, while 54.1% confirmed that council spends more on salaries and wages than is approved in the budget. On the whole, expenditure control as a financial accountability mechanism in Kabale district appears to stand at 71.2%.

In relation to financial reporting as a financial reporting mechanism, 92.7% confirmed that the overall budget execution is achieved under supplementary budget, 83.5% confirmed that the financial reporting system is compliant with financial laws, while 80.7% indicated that the reporting system has a standard for recording assets. In a related view, 78.9% confirmed that the local government's financial information is treated in accordance with international rules and guidelines, which makes district's reporting system to demonstrate quality. Though participants confirmed that their financial reports are easily understood by users (76.2%), they also moderately indicated that financial information is presented in a less subjective manner (61.5%) and that the reporting system has a standard for recording liabilities (57.8%). On the whole, financial reporting as a financial accountability in Kabale district local government appears to stand at 76.3%.

In view of service delivery, 88.1% confirmed that the district runs projects that are intended to improve citizens' welfare, 82.6% confirmed that the services delivered by the council are indeed of the right type, 81.7% agreed that the projects implemented by the council meet the demand of citizens in the local area. About 79.8% agreed that the district delivered quality services, are a guarantee of their tight (74.3%) and reflect citizens' participation in decision making (70.7%). On a slightly lower end, 64.2% agreed that district council solves citizen's problems. On the whole, service delivery in Kabale district local government appears at 77.3%.

In line with budget as a mechanism of financial accountability in Kabale district local government, 87.1% indicated that budget demonstrates political preference. In moderate view points, 56.9% agreed that the budget demonstrates a sound financial system, 55.0% agreed that the budget is a true measure of council's effectiveness while 51.4% agreed that the budget is a true measure of council's efficiency. It should be noted that 47.8% disagreed with the view that the budget enables council to attend to priorities in the local area, 40.4% disagreed that the budget demonstrates community preference, while 35.8% disagreed that the budget enables council to utilize resources economically. The above statistics suggest a politicized and biased position on the budget as a policy document. In the same



**Table 1.** Financial accountability mechanisms.

<b>Variable List</b>	<b>Disagreement (%)</b>	<b>Not Sure (%)</b>	<b>Agreement (%)</b>
<b>Expenditure control</b>			
1.Our resource envelope is adequate to allow quality public expenditure	6.4	3.7	89.9
2.Our overall budget execution is always in line with the official approved budget	8.2	6.4	85.3
3.Our council is committed to spending within the budget	20.2	8.3	71.5
4.Our financial reports always indicate a very small difference between the original and the executed budget	26.6	9.2	64.2
5.The money council spends on development is lower than is approved in the budget	23	14.7	62.4
6.Our council spends more on salaries and wages than is approved in the budget	29.4	16.5	54.1
<b>Average</b>	<b>19.0</b>	<b>9.8</b>	<b>71.2</b>
<b>Financial reporting</b>			
1.The overall level of budget execution is achieved under supplementary budget	5.5	1.8	92.7
2.Our financial reporting system is compliant with financial laws	9.2	7.3	83.5
3.Our financial reporting system has a standard for recording assets	7.4	11.9	80.7
4.Our financial information is treated in accordance with international rules and guidelines	11.9	9.2	78.9
5.Our financial reporting systems demonstrates quality	6.5	14.7	78.9
6.Our financial reports are easily understood by users	23.9	0	76.2
7.Our financial information is presented in a less subjective manner	20.2	18.3	61.5
8.Our financial reporting system has a standard for recording liabilities	23.9	18.3	57.8
<b>Average</b>	<b>13.6</b>	<b>11.6</b>	<b>76.3</b>
<b>Service delivery</b>			
1.The projects that are intended to improve citizens' welfare are clearly communicated to everyone	11.9	0	88.1
2.The services delivered by my council are indeed of the right type	9.2	8.3	82.6
3.The projects implemented by my council meet the demand of citizens in the local area	18.3	0	81.7
4.The services delivered by our council are of quality	7.4	12.8	79.8
5.The services delivered by our council are a guaranteed of my right	18.4	7.3	74.3
6.The services delivered by our council reflect citizen participation in decision making	13.8	15.6	70.7
7.The services delivered by our council solves citizen problems	24.8	11	64.2
<b>Average</b>	<b>14.8</b>	<b>11.0</b>	<b>77.3</b>
<b>Budget</b>			
1.Our council budget is a demonstration of political preference	4.6	8.3	87.1
2.Our budgets demonstrate the a sound financial system	26.6	16.5	56.9
3.Our budget is a true measure of council's effectiveness	24.8	20.2	55
4.Our budget is a true measure of council's efficiency	30.3	18.3	51.4
5.Our budgets enable council to utilize resources economically	35.8	18.3	45.9
6.Our council budget is a demonstration of community preferences	40.4	17.4	42.2
7.Our budget enables council to attend to priorities in the local area	47.8	24.8	27.5
<b>Average</b>	<b>30.0</b>	<b>17.7</b>	<b>52.3</b>

Source: Field data, 2019.

line of observation, one respondent reiterates: "...any government that delivers quality services, which are consistent with community interests and that promotes the private-sector growth alongside proper management of public resources is not far from the Millennium Development Goals..." (Civil Society Advocate). However, it remains evident that since the budget in Kabale district is a demonstration of political preference, it is true that local area priorities and preference are ignored, which renders council inefficient. Similarly, if the budget can

hardly demonstrate a sound financial system, the council stands to inefficient in its utilization of economic resources. On the whole, the budget, as revealed by the statistics suggests a non-performing budget represented by 52.3%. The findings are in agreement with the opinion of one key informant: "...Mayors have the powers to implement their policy preferences but these should not suppress citizens' interests..." (Sub County Speaker). In practice, competing interests should be analyzed democratically than politically suppressing them. It should

be noted that out the four mechanisms of financial accountability used in Kabale district local government, service delivery (77.3%) and financial reporting (76.3%) appear to be two practices that propagate sound financial accountability.

## DISCUSSION

The study sought to establish the financial mechanisms that are used in Kabale district local government. Participants pointed to service delivery as the most important mechanism of financial accountability in Kabale district local government. The findings are in line with (MOFPED, 2017) which presented how government of Uganda has over the years introduced a number of reforms aimed at enhancing transparency, accountability of public resources and improved service delivery. The findings render support to (Rabrenovic, 2009) who outlined service delivery as one of the mechanisms that can ensure sound financial accountability. Based on European Union guidelines, Rabrenovic notes that the ability of the accounting entity to remain transparent and give evidence of value for money is dependent on the effectiveness of the internal controls in place to forestall budgetary problems before they occur.

The findings seem to disagree with Auditor General (2017) whose report called for the need to ensure quality service delivery as well as citizen participation and involvement. The disagreement of the findings with Auditor General's report comes in as corrective evidence to the recommendations of the Auditor General's report of 2017. Contrary to Auditor General's report, the current study presented Kabale district local government as delivering services that depict the right type and as meeting the demands of citizens. The findings are in agreement with Agwor and Akani (2017) who investigated financial accountability and performance of local governments in River State, Nigeria; and observed that local governments are assumed to be performing if the projects and services meet the demands of the citizens in the local areas.

The findings indicated pessimistically that Kabale district local government solves the problems of citizens. This agrees with Keil (2005) who analyzed the principal-agent theory and its application on outsourcing in software development. He found that the principals (who are the citizens in this case) fail to receive the goods and services they pay for because they are limited in ability to monitor and judge the input and output of the contractors (in this case the local government). Similarly, Hlavacek and Hlavacek (2006) who analyzed the "Principal – Agent" problem in the context of the economic survival found that the public empowers government officials to promote public welfare using public resources, however, government officials end up serving their own interests, which jeopardizes service to

the public. This is true in the sense that the public lacks the ability to question the conduct and behavior of government officials and to impose sanctions where such conduct or behaviors fall short of the requirement.

The study presented the budget as the least used mechanism of financial accountability in the district. Participants disagreed that the budget enables council to attend to priorities in the local area. The findings agree with Tsurkan et al., (2016) who noted that financial accounting and management accounting cannot be neatly compartmentalized in the public sector, where management accounting refers to budgeting and control rather than accounting solely in the service of managers. Certainly, if the budget is an expression of political preference, service delivery will be compromised in favor of political interests. However, the findings disagree with Berner and Smith (2004) who view the budget as a mechanism for financial planning. In their view, the budget allows for the achievement of priorities and objectives through the limited fiscal resources. Treated in this angle, the budget can contribute significantly to greater efficiency, effectiveness and accountability within the organization. Participants also disagreed that they demonstrate community preference and that council utilizes resources economically. In this view, all public actions should embrace citizens' preference and work towards achieving it. The findings however, disagree with Kim et al. (2010) who noted that when various stakeholders combine information on budgeting preferences, the principle of publicity overrides all the core principles of any budget. Competing interests should be analyzed and prioritized democratically.

## CONCLUSION AND POLICY IMPLICATION

The study examined financial accountability mechanisms in Kabale district local government, Uganda. Given the four financial accountability mechanisms investigated, service delivery is the most widely applied financial accountability mechanism in Kabale district local government. Given the current study, it is clear that most of the projects implemented in the district align with the demands of the local population and citizens' welfare, in particular. The study found that participants could evaluate the performance of the district in terms of service delivery because such services are visible to the public compared to financial reporting, expenditures and the budget, which require technical judgment. Notwithstanding the technical requirements to evaluate financial performance in terms of financial reporting, expenditure control, and the budget; this study found that the district achieves much of her budgetary goals under supplementary budget approvals. The budget was indeed the least measure of financial performance strongly because of the irregularities in salaries and wages expenditures, and its political preference. Therefore, local

governments should ensure their budgets demonstrate community preference, pay salaries and wages as approved in the budget, and standardize their reporting on liabilities. Due to the scope of this paper, which could not quantitatively relate financial accountability and service delivery, future researchers should consider assessing the effect of financial accountability on service delivery in local governments.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interest.

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*Full Length Research Paper*

# **Board structure and firm performance: An empirical study of Greek systemic banks**

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**This paper examines the effect of board characteristics on bank financial performance. Tracing the Greek financial crisis during the period of 2008 to 2018, the paper investigates whether board size, board independence, CEO duality, female directors, and foreign directors affect banks performance. The empirical evidence shows that board structure has a significant effect on bank performance. Specifically, board size, board independence and chairman independence were found to exert a positive effect on bank performance. The effect of diversity on performance was ambiguous, since the effect of female directors was positive; but the effect of foreign directors was negative. These findings can potentially help banks improve performance by considering the features found significant in this study. Moreover, regulators can draw insight from the findings to design rules that strengthen corporate governance effectiveness.**

**Key words:** Bank corporate governance, board characteristics, financial performance, Greek systemic banks.

## **INTRODUCTION**

The aim of this paper is to investigate the relationship between corporate governance and financial performance of Greek systemic banks from 2008 to 2018, a period encompassing the outbreak, development and ending of the sovereign debt crisis in Greece. What makes Greece an interesting setting is that an otherwise developed economy and Eurozone member country suffered a severe fiscal crisis, was involved in the biggest haircut in the history of sovereign debt and subsequently experienced a financial crisis that transformed the structure of its banking industry (Georgantopoulos and Filos, 2017; Kalemli-Özca et al., 2016; Koutoupis et al., 2020). These conditions led to significant changes

taking place in the regulatory framework and the governance of the banking industry. In this context, there was a requirement for compliance of the Greek systemic banks with the existing corporate governance frameworks, imposing rules for more efficient functioning of the board of directors. The study of the impact of corporate governance on the effectiveness of banks in time of crisis has been a topic of interest in the literature (Orazalin et al., 2016).

This study complements the existing literature by exploring the impact of board structure in bank performance in an environment with the political, fiscal, financial, and institutional elements of Greece. The sample

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sample consists of the four systemic Greek banks. The analysis is based on arguments about the importance of board structure characteristics that have been identified in the literature and the quantitative analysis is carried out with a panel-data regression model. In this context, the fundamental corporate governance characteristics were investigated as determinants of bank performance as proxied in the literature, such as board size, independence of board members, board diversity and chairman's independence. Specifically, board size (Andres and Vallelado, 2008; Gaur et al., 2015) and independent directors (Andres and Vallelado, 2008; Georgantopoulos and Filos, 2017; Liang et al., 2013) were expected to be positively associated with performance. Regarding board diversity, it was expected that female directors positively affect performance (García-Meca et al., 2015; Gulamhussen and Santa, 2015) and outside directors positively or negatively affect bank performance (Almutairi and Quttainah, 2020; Choi and Hasan, 2005; García-Meca et al., 2015; Rafinda et al., 2018). Finally, a negative effect of CEO duality on bank performance was expected (Kaymak and Bektas, 2008; Liang et al., 2013). The results indicate that board size, board independence, chairman independence and female directors have a positive effect on bank performance; whereas the presence of foreign directors has a negative association with performance.

### **The Greek banking industry during the financial crisis**

The Greek crisis occurred in the aftermath of the 2008 international financial crisis. Initially, the global crisis did not deliver an immediate blow impact on the Greek economy, mainly because Greek banks were not substantially exposed to the global environment of financial engineering and toxic financial instruments. In the decade leading to the crisis, bank profitability exhibited substantial fluctuations. The return on assets (ROA) fell from 20.3% in 2000 to 5.7% in 2004, then increased to 17.9% in 2007 and subsequently fell to 10.1% in 2008 when the first signs of the global financial crisis cast their shadow on the Greek economy. The return on equity (ROE) exhibited a similar trend. It fell from 1.8% in 2000 to 0.4%, then rose to 2.1% in 2007 and subsequently declined to 1 in 2008 (European Commission [EC], 2020). It should be noted, however, that Greek banks were among the last to experience the effects of the global crisis, mainly due to their limited exposure to financial engineering and international capital markets. Their profitability was higher than most of their European counterparts in 2008, only to plummet in 2009 and 2010 in the wake of the sovereign debt crisis.

Several factors contributed, subsequently, to Greece's

vulnerability: the loosening of the country's fiscal policy from 2004 to 2010, combined with the fall in investments as well as private consumption; and the limited competitiveness of the Greek economy resulted in the increase of public debt and budget deficit, as well as a high and growing current account deficit (Andreou et al., 2017). The fast downgrading of Greece government's credit rating resulted in a dramatic rise in the government's borrowing costs and the exclusion of Greek banks from accessing international financial markets. Greek government's decision to request financial aid from the European Union (EU) and the International Monetary Fund (IMF) led to the formation of the Troika (European Union, European Central Bank [ECB] and International Monetary Fund) and the provision of financial support, to avoid sovereign default. The largest part of the funds granted were incorporated to repay debt to international financial institutions and to recapitalize the Greek banks (Bortz, 2019).

The recapitalization of the Greek banking system was based on a combination of private funding and European Financial Stability Facility (EFSF) funding, at three different points in time, 2010, 2012 and 2015, with the signing of the three Memoranda of Understanding. The funds granted were tunneled through the Hellenic Financial Stability Fund (HFSF) and used exclusively for the rescue of the four systemic banks (National Bank of Greece, Alpha Bank, Bank of Piraeus and Eurobank); whereas, the rest were forced to take reorganizational measures or to merge (Tampakoudis et al., 2019). The restructuring of the banking industry resulted in the severe contraction of the market and a subsequent reduction in the number of banking institutions from 36 in 2008 to 18 in 2016, with the four systemic banks possessing more than 95% of the domestic banking market (European Stability Mechanism [ESM], 2018).

### **Corporate governance and Greek banks**

The main characteristic of corporate governance in Greece at the beginning of the crisis was the existence of a multitude complex of laws and regulations (such as, L.2190/1920, L. 3016/2002, L.3601/2007, L.3606/2007, L.3864/2010) (Nerantzidis and Filos, 2014; Kourdoumpalou 2016). However, the operational quality of corporate governance mechanisms appeared low compared to international practices (Lazarides and Drimpetas, 2011). According to Lazarides and Drimpetas (2011), the banking industry performed slightly better, because in addition to the Hellenic Capital Market Commission, the banks were also subject to supervision by the Bank of Greece (Act 2577/2006 and all relating Acts issued by the Bank of Greece) and the ECB, which placed heavy emphasis on mitigating risks and fraud. The

inclusion of the systemic banks in the HFSF recapitalization program was accompanied by strict compliance requirements, concerning both their policies and governance (ESM, 2018). One of these conditions was the requirement for compliance of the Greek systemic banks with the existing corporate governance frameworks and the provisions of the Relationship Framework Agreement. The reform in corporate governance-imposed rules for more efficient functioning of the board of directors, strict distinction between executive and non-executive members of the board and independence of the chairmen of the most important committees of the boards.

There is extant research on the impact of corporate governance on bank performance during the Greek crisis. Georgantopoulos and Filos (2017) studied the impact of corporate governance on the performance of Greek banks from the beginning of the crisis in 2008 until the second recapitalization in 2014 and found a positive contribution of the applied corporate governance regulatory framework to the value of Greek banks. In a similar study in the period of 2006-2016, Koutoupis et al. (2020) found a positive relationship between banks' performance with some elements of corporate governance (independent members of the Board of Directors and corporate governance committees) and a negative relationship with CEO duality. Relevant studies are also available in other national markets facing financial crises. Orazalin et al. (2016) studied the performance of Russian banks during the period of 2004-2012 and observed a positive impact of good corporate governance on the performance of Russian banks before and after the financial crisis, while during the crisis better governance did not yield higher performance to Russian banks. Similarly, Anderson and Campbell (2004) examined the internal and external corporate governance activity observed in Japanese banks from 1985-1996 and concluded that some aspects of corporate governance exacerbated the Japanese banking crisis of the 1990s.

In the light of the ongoing debate on the effect of corporate governance on bank performance in times of crisis, the aim of this paper is to explore the performance of Greek systemic banks vis-à-vis a set of critical corporate-governance characteristics during the 2008-2018 periods. This study extends and complements prior research on banks and corporate governance in Greece. While previous studies have examined the period until 2016, this paper examines the entire period of the crisis, including the landmark end of the sovereign debt crisis on August 20, 2018, when Greece successfully exited its final, three-year bailout program. This study focuses on the four systemic banks and not all the Greek banking system, since these banks were catalysts in recapitalization, regulatory reform, and corporate governance changes in the banking sector. In addition to

comprising 95% of the Greek banking market, it was the systemic banks that received restructuring funds via the Hellenic Financial Stability Fund (HFSF) and were placed under strict governance framework. The third economic adjustment program (EAP) in 2016 was conditioned upon the implementation of the HFSF's review for the boards and committees of the systemic banks, with the "fit and proper" criteria. These strict set criteria have brought about an improvement in the effectiveness of banking governance in systemic banks (European Commission, 2020). The remainder of the paper is organized as follows. The next section provides the theoretical background and develops the hypotheses, the third section presents the methodology, the fourth section contains the empirical results and the discussion, and the fifth section concludes the paper.

## LITERATURE REVIEW

Corporate governance remains a central topic of interdisciplinary research for more than two decades, partly owing its rise to academic and regulatory spotlight prominence to the impact of a series of notorious corporate scandals, including Enron, Parmalat, Worldcom, Tyco etc. A key question remains whether corporate governance, apart from being a mechanism for protecting and promoting shareholders' interests (Shleifer and Vishny, 1997), also influences company financial performance. Although many studies have established a link between corporate governance and firm performance (Adams and Mehran, 2012; Larcker, Richardson and Tuna, 2007), a coherent and consistent set of results, concerning specific corporate governance mechanisms, is still lacking (Larcker et al., 2007). According to Kiel and Nicholson (2003), this is largely because it is impossible for a sole theory (agency theory, stewardship theory, resource dependency theory, stakeholder theory or other) to adequately respond to the questions of corporate governance. On the other hand, Rodriguez-Fernandez et al. (2014) and Gaur et al. (2015) suggest that a combined approach should be followed instead. Corporate governance is important for banks because the latter exert a substantial (implicit or explicit) impact on the corporate governance of other firms, either as creditors or as equity holders (Staikouras et al., 2007). The regulations, business model and the economic impact of the banking industry have spawned a fruitful debate of the corporate governance of banks and its effect on financial performance. Banks bear certain characteristics, which distinguish their governance model from that of non-financial firms (Haan and Vlahu, 2016; Kose et al., 2016). Relevant studies by Kose et al. (2016) and Haan and Vlahu (2016) identify the regulatory framework and the complexity and opacity of banking activities as critical

characteristics. In addition, Haan and Vlahu (2016) also identify banks' capital structure as an important difference; whereas Kose et al. (2016) highlight the conflict of interest between equity holders and creditors. Furthermore, Adams and Mehran (2005) as well as Kose et al. (2016) argue that a set of earlier empirical results on corporate governance of non-financial firms cannot be verified for banks as well. Haan and Vlahu (2016) also find that the results of the relationship between corporate governance and several performance measures are ambiguous at best, if not contradictory.

Many studies also focus on the relationship between board composition and bank performance (Adams and Mehran, 2005, 2012; Andres and Vallelado, 2008; Choi and Hasan, 2005; Mamatzakis and Bermpei, 2015; Pathan and Faff, 2013). Adams and Mehran (2005) studied the relationship between board structure and the performance of a sample of American banks over the period of 1959-1999. In contrast to the empirical findings of non-financial corporations, they found that the existence of large boards does not imply lower performance and suggests that the constraints of the board of directors in the banking industry can be counterproductive. In contrast, Mamatzakis and Bermpei (2015) in a study conducted in American investment banks during the period of 2000-2012 found that the size of the board has a negative impact on performance, especially in banks with a board size of more than ten members. A negative relationship between operational complexity and performance is, furthermore, indicated. In addition, the CEO power has a positive effect on performance. Staikouras et al. (2007) examined the relationship between board size and performance, as well as the proportion of non-executive board members and performance in 58 major European banks during the period of 2002-2004. The results indicated a negative relationship between performance and board size, while the effect of board composition was rather weak. Al-Saidi and Al-Shammari (2013) studied nine Kuwaiti banks during 2006-2010 and found a significant relationship between board composition and bank performance.

According to their results, the board size and the percentage of non-executive directors affects bank performance adversely; on the contrary, the CEO duality affects bank performance positively. Love and Rachinsky (2015) studied the relationship between corporate governance and the performance of 107 Russian and 50 Ukrainian banks from 2003-2006. They found that the relationship between corporate governance and bank performance is not particularly strong in Russian and Ukrainian banks. Prior research has identified four basic structure elements, namely the board size, the independence of its members, the board diversity and the chairman's independence, as the main features associated with performance.

## Hypothesis development

Board size has been extensively studied in prior research providing mixed results. A well-staffed board may be more effective in the performance of its duties. Especially in banks, their complexity necessitates large boards (Kose et al., 2016). On the contrary, an excessive number of board members can cause problems and may reflect the inefficiency of the organizational structure of the institution (Pathan and Faff, 2013). In line with this last argument, Rodriguez-Fernandez et al. (2014) and Pathan and Faff (2013) found a negative relationship between board size and performance, in financial and non-financial firms, respectively. On the contrary, several studies on the effect of board size on performance came up with a positive effect result (Andres and Vallelado, 2008; Gaur et al., 2015). For example, Gafoor et al. (2018) investigated banks in India and found a positive impact of board size on bank performance (ROA), supporting the result in the argument that a large board adds more expertise to the bank in decision-making. Adams and Mehran (2012) provide evidence for a positive relation between board size and bank performance suggesting that larger boards have more directors with subsidiary directorships which may suit the complexity of such institutions. In addition, Andres and Vallelado (2008) found positive effect of board size on bank performance (Tobin's Q), arguing however, that there is a point (19 directors) at which the addition of a new director ends up reducing the value of the bank. Drawing on these arguments the following hypothesis is formulated:

*H1 Firm performance is positively associated with board size.*

Another element of board structure that has been extensively investigated is board independence. In studies that examined the effect of independent directors on the performance of listed firms, the results were mixed, finding positive (Shahrier et al., 2020), negative (Gaur et al., 2015) and no effect (Syriopoulos and Tsatsaronis, 2011). Studies focusing on the banking industry also provide conflicting results. Pathan and Faff (2013) in a study of large US banks found that board independence reduces bank performance, while Liang et al. (2013) in a sample of large Chinese banks reported a significantly positive impact of independent directors on bank performance (ROA). Andres and Vallelado (2008) as well as Georgantopoulos and Filos (2017), in surveys conducted in international banks and Greek Banks, respectively, came to a similar conclusion to that of Liang, but stressed that an excessive proportion of independent directors could reduce their positive impact on bank performance. Despite the conflicting findings of



the literature<sup>1</sup>, a positive effect of board independence on performance is expected in this study, arguing that independent directors increase the board's ability to oversee the management. Therefore, in line with corporate governance codes (Institute of Directors [IOD], 2009) proposing to increase the independence of the board, the following hypothesis is formulated:

*H2 Firm performance is positively associated with the independence of the board.*

Many studies have investigated the impact of board diversity on firm-level outcomes (Terjesen et al., 2015). Prior research has shown that board diversity is associated with financial performance (Lückerath-Rovers, 2011; Tampakoudis et al., 2020). Indeed, the growing literature on the effectiveness of board diversity has acknowledged a relationship between a gender-diverse board and performance underlining that firms perform significantly better with female directors (Adams and Ferreira, 2009). Terjesen et al. (2015) found that firms with more female directors have a higher firm performance measured by market-based (Tobin's Q) and accounting (return on assets) measures. Sarhan et al. (2019) found that the relationship between board diversity as measured by gender and corporate performance is stronger in better-governed firms than their poorly governed counterparts and also have a positive effect on financial performance. In the field of banks, Gulamhussen and Santa (2015) in a sample of large banks from OECD countries found that female directors in boards have a positive influence on bank performance. In the same direction, Garcia-Meca et al. (2015) analyze the effect of board diversity on bank performance in nine countries and concluded the positive effect of female directors on performance, in terms of Tobin's Q and ROA. Drawing on these arguments the following hypothesis is formulated:

*H3 Firm performance is positively associated with the existence of female directors in the board.*

Another variable of board diversity that has been investigated in the literature is foreign directors (Liang et al., 2013; Masulis et al., 2012; Oxelheim and Randøy, 2003). The results are ambiguous as different studies show a positive, negative or no effect of this variable on various evaluation measures. Oxelheim and Randøy (2003) indicate a significantly higher value for firms that have foreign Anglo-American board member(s). Masulis

et al. (2012) found that, while foreign directors make better cross-border acquisitions when they relate to their region of origin, foreign directors also show poor participation in the meetings of the board. Research in banking industry yielded similar results. The picture remains blurred. Almutairi and Quttainah (2020) indicating that while the presence of foreign directors in Islamic Banks increases boards' effectiveness in reducing management opportunistic behavior, in conventional banks the existence of foreign directors reduces this ability. Choi and Hasan (2005), exploring the Korean banking industry, indicate that foreign directors are associated with better performance, in terms of bank return and risk. Finally, regarding the effect of foreign directors on bank performance, in terms of ROA, ROE and Tobin's Q, it has been argued that this effect is negative (García-Meca et al., 2015; Rafinda et al., 2018). Due to the conflicting results, the following hypothesis is formulated:

*H4 Firm performance is positively or negatively associated with the existence of foreign directors.*

Having different people serving as Chairman of the board and Chief Executive Officer (CEO) is essential in corporate governance and it is clearly advocated in corporate governance best practices (IOD, 2009). If the same person holds both positions (CEO duality) there may be problems in the board's effectiveness in monitoring the management and preventing speculative behavior against shareholders' interests, especially small ones. On the contrary, according to the stewardship theory, powerful CEOs, who also hold the position of chairman could act as benevolent and powerful stewards of the firm resources and thus contribute to the effective corporate governance (Donaldson and Davis, 1991). In line with the latter argument, studies in listed companies have shown that CEO duality can have a positive impact on firm performance (Gaur et al., 2015; Mamatzakis and Bermei, 2015). On the other hand, Shahrier et al. (2020) found a significantly negative impact of CEO duality on firm performance (ROA and ROE) in listed firms in Tanzania and Malaysia, respectively. Finally, research in the banking industry also found a negative effect of CEO duality on performance (Kaymak and Bektas, 2008; Liang et al., 2013) in line with agency theory, according to which CEO duality reduces the effective treatment of the conflict of interest among stakeholders. Drawing on these arguments the following hypothesis is formulated:

*H5 Firm performance is negatively associated with CEO duality.*

<sup>1</sup> In the sample of this study (4 banks – 44 observations) the mean value for independent directors is 35% and the maximum percentage that appeared is 54%, which is not considered extremely high.

**Table 1.** Variables definition and measurement.

<b>Dependent variable (measure of bank performance)</b>		
<i>ROA</i>	Return on Assets	The net income as a percentage of average book-value of total assets.
<b>Predictor variable (Board structure)</b>		
<i>BS</i>	Board size	The number of directors in the board.
<i>NON-EXEC</i>	Non-executive directors	The percentage of directors who are non-executive.
<i>IND</i>	Independent directors	The percentage of directors who are independent.
<i>FEMALE</i>	Female directors	The percentage of directors who are female.
<i>FOREIGN</i>	Foreign directors	The percentage of directors who are foreign.
<i>DUALITY</i>	Dual role in the board	Dummy variable equals 1 if CEO is also Chairman of the board and 0 otherwise.
<b>Control Variables (Company-specific characteristics)</b>		
<i>TA</i>	Banks size	The natural logarithm of the bank's total assets as at each fiscal year end.
<i>EQUITY</i>	Bank equity	The bank's total equity as a percentage of total assets

## DATA AND METHODS

### Sample

The sample consists of the four Greek systemic banks (National Bank of Greece - NBG, Alpha Bank - ALPHA, Bank of Piraeus - PIR and Eurobank - EUROB). To assemble the data set, information on performance measures and board characteristics was obtained from banks' annual reports and websites from 2008-2018. This process yielded a total of 44 bank-year observations.

### Research design

The fixed effect panel data Model was selected to conduct the

$$ROA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 NON\_EXEC_{it} + \beta_3 IND_{it} + \beta_4 FEMALE_{it} + \beta_5 FOREIGN_{it} + \beta_6 DUALITY_{it} + \beta_7 TA_{it} + \beta_8 EQUITY_{it}$$

(1)

Where,  $i$  = bank and  $t$  = year. The Model combines board structure variables (predictor variables) with bank characteristics (control variables). Predictor variables test the argument of this study as outlined in section 3; the predictor variables that were employed in testing H2 (directors' independence) were *NON\_EXEC* and *IND*. The distinction between non-executive and independent members is based on the KING III framework (IOD, 2009). Control variables are based on the literature and involve factors that can potentially affect bank's performance. Following previous studies, two control variables are included, namely bank size and bank equity. Bank size (*TA*) is measured by total assets at year-end (Choi and Hasan, 2005; Liang et al., 2013); bank equity (*EQUITY*) is measured by total equity as a percentage of total assets (Liang et al., 2013; Pathan and Faff, 2013). Table 1 provides definitions for all the variables in the Model.

## RESULTS

### Descriptive statistics

Table 2 provides descriptive statistics for the dependent

empirical analysis, subsequent to a Hausman (1978) test application to compare the coefficient estimates under fixed and random effects (Baltagi, 2005). The fixed effects model (FEM) considers the fact that although some variables differ across different cases (heterogeneity), they do not vary over time, (that is, they are time invariant). Following previous literature, we use return on assets (*ROA*) as a measure of bank financial performance, calculated as net income over total assets (Kaymak and Bektas, 2008; Liang et al., 2013; Pathan and Faff., 2013). This measure is used extensively in the literature because it is a measure of the firm's effectiveness in generating returns on its assets without being influenced by managerial financing decisions.

and independent variables (predictor and control) for the whole sample dataset (44 observations) and Table 3 provides descriptive statistics categorized by values of cross terms. The results show that the mean (median) of bank performance (*ROA*) is -0.90 (0.03), possibly attributed to the crisis that has plagued the Greek economy during the sample period. This result provided further support for the findings of Georgantopoulos and Filos (2017) (mean *ROA*: -2.07), the improvement observed is probably due to the extension of the investigation period in this study to the years of de-escalation of the Greek crisis. The mean of the board size is 14.39, which is comparable with other studies (Liang et al., 2013: 13.08; Pathan and Faff, 2013: 12,68). Furthermore, Table 2 shows that the mean percentage of non-executive board directors on the whole sample is 68.93%, which is much higher than the mean percentage of independent directors that is 35.16%. Finally, the participation of female directors in the board is not strong

**Table 2.** Descriptive statistics for the whole sample.

<b>Variables</b>	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min</b>	<b>Std. Dev.</b>	<b>Skewness</b>	<b>Kurtosis</b>	<b>Obs.</b>
<i>ROA</i>	-0.90	0.03	4.52	-12.39	3.02	-2.20	8.70	44
<i>BS</i>	14.39	15.00	19.00	8.00	2.40	-0.35	2.89	44
<i>NON_EXEC</i>	68.93	66.67	90.00	47.37	9.02	0.27	3.19	44
<i>IND</i>	35.16	40.00	53.85	11.76	11.04	-0.78	2.49	44
<i>FEMALE</i>	11.62	12.13	27.27	0.00	5.43	0.33	3.49	44
<i>FOREIGN</i>	23.98	17.69	63.64	0.00	20.36	0.26	1.66	44
<i>DUALITY</i>	0.05	0.00	1.00	0.00	0.21	4.36	20.05	44
<i>TA</i>	11.22	11.18	11.70	10.81	0.23	0.48	2.28	44
<i>EQUITY</i>	0.08	0.09	0.16	-0.04	0.05	-0.83	3.19	44

**Table 3.** Descriptive statistics categorized by values of cross terms.

<b>Variables</b>	<b>ROA</b>					<b>FOREIGN</b>					
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	
NBG	-1.08	-0.02	1.65	-10.84	3.44	NBG	22.30	14.29	54.55	6.25	17.96
ALPHA	-0.35	0.09	4.52	-6.05	2.52	ALPHA	15.16	0.00	46.67	0.00	19.14
PIR	-1.19	0.04	3.10	-12.39	3.97	PIR	17.46	10.53	63.64	0.00	23.99
EUROB	-0.98	0.14	0.90	-6.90	2.19	EUROB	41.00	37.50	57.14	31.25	7.95
<b>Variables</b>	<b>BS</b>					<b>DUALITY</b>					
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	
NBG	13.64	14.00	16.00	11.00	1.80	NBG	0.09	0	1	0	0.30
ALPHA	14.55	15.00	16.00	12.00	1.13	ALPHA	0.00	0	0	0	0.00
PIR	15.36	16.00	19.00	11.00	2.94	PIR	0.09	0	1	0	0.30
EUROB	14.00	14.00	17.00	8.00	3.13	EUROB	0.00	0	0	0	0.00
<b>Variables</b>	<b>NON_EXEC</b>					<b>TA</b>					
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	
NBG	69.76	68.75	84.62	60.00	7.41	NBG	11.48	11.58	11.70	11.08	0.23
ALPHA	67.48	66.67	73.33	64.29	2.32	ALPHA	11.09	11.09	11.21	10.97	0.08
PIR	64.25	60.00	83.33	47.37	12.64	PIR	11.13	11.12	11.43	10.81	0.22
EUROB	74.23	70.59	90.00	64.71	8.45	EUROB	11.20	11.23	11.38	10.97	0.13
<b>Variables</b>	<b>IND</b>					<b>EQUITY</b>					
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	
NBG	42.67	42.86	53.85	33.33	6.28	NBG	0.07	0.09	0.11	-0.02	0.04
ALPHA	39.39	40.00	41.67	35.71	1.60	ALPHA	0.10	0.11	0.16	0.01	0.05
PIR	27.51	18.75	45.45	15.79	12.47	PIR	0.07	0.08	0.14	-0.04	0.06
EUROB	31.05	33.33	46.15	11.76	12.71	EUROB	0.07	0.07	0.12	-0.01	0.04
<b>Variables</b>	<b>FEMALE</b>										
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>						
NBG	13.78	14.29	27.27	0.00	6.40						
ALPHA	12.43	13.33	20.00	6.67	4.87						
PIR	13.14	11.76	20.00	8.33	4.24						
EUROB	7.12	6.25	15.38	0.00	3.69						

**Table 4.** Panel regression results: Board structure and Financial Performance – Model 1.

Dependent variable: ROA		Panel regression results
Variable	Expected Impact	Model 1
Constant		21.552*
<b>Board structure variables</b>		
<i>BS</i>	+	0.022**
<i>NON_EXEC</i>	+	-0.037
<i>IND</i>	+	0.004**
<i>FEMALE</i>	+	0.015*
<i>FOREIGN</i>	+ / -	-0.022*
<i>DUALITY</i>	-	-1.265**
<b>Control Variables</b>		
<i>TA</i>		2.261*
<i>EQUITY</i>		73.755**
<b>Diagnostic Statistics</b>		
<i>R-squared</i>		0.837
<i>F-statistic</i>		15.681
<i>Prob(F-statistic)</i>		0.000
<i>Akaike info criterion</i>		2.353

\* Statistically significant at 5%; \*\*Statistically significant at 1%.

(11.62%) (Liang et al., 2013: 11%); with participation of foreign directors at slightly higher levels (23.98%). This latest result is consistent with other studies (Almutairi and Quttainah, 2020: 20%), or even higher than others (Liang et al., 2013: 6%). From the findings Table 3, it is worth noting that the Greek bank with the lowest (mean) percentage of female directors (Eurobank: 7.12%) is also the bank with the highest percentage of foreign directors (41%).

### Panel regression results

Table 4 provides results from the fixed effect panel data for Model 1. Table 4 shows that 83.7% of dependent variable variability is explained by the selected explanatory variables. The necessary residual tests for cross-sectional heteroskedasticity and period heteroskedasticity problems were performed and no evidence of heteroskedasticity was detected in the data set. The results indicate an overall strong association between board structure and bank performance since it was found to be a strong support for all research hypotheses of this study (H1-H5). Regarding board size (*BS*), the results showed a positive effect on bank performance (0.022) at a level of significance 1%, indicating that banks with more directors on board are likely to have increased performance. A positive effect on

bank performance was also found for board independence (*IND*). This argument suggests that having more independent board directors could potentially improve bank's performance. On the other hand, no evidence was found for the impact of non-executive directors on bank performance, since no statistically significance was found for this variable (*NON-EXEC*).

With respect to the predictor variables of board diversity, the findings indicate a statistically significant impact on bank performance (*FEMALE* and *FOREIGN*,  $p < 0.05$ ). Specifically, it was found that the presence of female directors in the board increases bank performance (0.015), while the participation of foreign directors is found to be negatively associated with bank performance (-0.022), at a significance level of 5%. Regression results also indicate a strong relationship between CEO duality and bank performance. Specifically, in line with expectations, it was found that CEO duality (*DUALITY*) have a significantly negative impact on performance (-1.265,  $p < 0.01$ ).

Regarding control variables, regression results support the hypothesis that the size of the bank, in terms of total assets (*TA*), has a positive effect on bank performance (2.261), at a level of 5% significance. A positive relationship was also found between bank's equity (*EQUITY*) and performance (73.755,  $p < 0.01$ ). These findings suggest that larger and less leveraged banks are more likely to operate effectively.

**Table 5.** Descriptive statistics for *NIM* and *PT\_ROA*.

<b>Panel A: Descriptive statistics for the whole sample for <i>NIM</i> and <i>PT_ROA</i></b>						
<b>Variables</b>	<b><i>NIM</i></b>			<b><i>PT_ROA</i></b>		
Mean	2.77			-1.38		
Median	2.70			-0.09		
Maximum	4.20			3.45		
Minimum	1.70			-14.06		
Std. Dev.	0.54			3.39		
Skewness	0.80			-2.09		
Kurtosis	3.71			7.69		
Observations	44			44		

  

<b>Panel B: Descriptive statistics categorized by values of cross terms for <i>NIM</i> and <i>PT_ROA</i></b>						
<b>Variables</b>	<b><i>NIM</i></b>					
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	<b>Obs.</b>
NBG	3.37	3.40	4.20	2.70	0.57	11
ALPHA	2.75	2.70	3.10	2.40	0.24	11
PIR	2.58	2.60	3.00	2.10	0.24	11
EUROB	2.36	2.40	3.20	1.70	0.42	11

  

<b>Variables</b>	<b><i>PT_ROA</i></b>					
	<b>Mean</b>	<b>Median</b>	<b>Max</b>	<b>Min.</b>	<b>Std. Dev.</b>	<b>Obs.</b>
NBG	-1.36	-0.17	2.02	-11.80	3.75	11
ALPHA	-0.79	-0.01	3.45	-7.510	2.81	11
PIR	-1.89	-0.18	2.15	-14.06	4.39	11
EUROB	-1.45	0.16	1.09	-8.510	2.76	11

$$NIM = \beta_0 + \beta_1 BS + \beta_2 NON\_EXEC + \beta_3 IND + \beta_4 FEMALE + \beta_5 FOREIGN + \beta_6 DUALITY + \beta_7 TA + \beta_8 EQUITY \tag{2}$$

$$PT\_ROA_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 NON\_EXEC_{it} + \beta_3 IND_{it} + \beta_4 FEMALE_{it} + \beta_5 FOREIGN_{it} + \beta_6 DUALITY_{it} + \beta_7 TA_{it} + \beta_8 EQUITY_{it} \tag{3}$$

**Additional analysis**

To test the robustness of the analysis based on *ROA*, two alternative measures of bank performance were applied: net interest income as a percentage of average earnings assets (*NIM*) and earnings before tax as a percentage of average book-value of total assets (*PT\_ROA*).

Model 2 and Model 3 combined board structure variables (predictor variables) and bank characteristics (control variables) with performance measures as follows: Where, *i* = bank, *t* = year, *NIM* is measured as the net interest income as a percentage of average earning assets and *PT\_ROA* as the earnings before tax as a percentage of average book-value of total assets. Independent variables of Models 2 and 3 are presented in Table 1. Table 5 provides descriptive statistics for *NIM* and *PT\_ROA*. Panel A provides descriptive statistics for the whole sample (44 observations) and Panel B provides descriptive statistics categorized by values of

cross terms.

Table 6 provides results from the fixed effect panel data for Model 2 and Model 3. Table 6 shows that dependent variable variability is explained by explanatory variables at a level of 78.5 and 85% in Model 2 and Model 3, respectively. The necessary residual tests were performed for cross-section heteroskedasticity and period heteroskedasticity problems; and no evidence of heteroskedasticity was detected in the data set. Overall, the results confirm the hypotheses with the board structure variables having a statistically significant effect on bank performance. Regarding Model 2 (*NIM*), the results for most variables were similar to those of Model 1, with small differences in coefficients values (*IND*, *FEMALE*, *DUALITY*, *TA*, *EQUITY*). One difference is the negative effect of the board size on the performance measure (*NIM*) (-0.007), in contrast to the positive effect found for *ROA* in Model1 which, however, in Model 2, did not appear to be statistically significant (*p*>5%).

**Table 6.** Panel regression results: Board structure and financial performance – Models 2 and 3.

Variable	Expected impact	Panel regression results	
		Model 2	Model 3
		NIM	PT_ROA
Constant		-11.031	24.660
<b>Board structure variables</b>			
<i>BS</i>	+	-0.007	0.024**
<i>NON_EXEC</i>	+	-0.011*	-0.054
<i>IND</i>	+	0.012**	0.021**
<i>FEMALE</i>	+	0.023*	0.016*
<i>FOREIGN</i>	+ / -	-0.001**	-0.025*
<i>DUALITY</i>	-	-0.320**	-1.238**
<b>Control Variables</b>			
<i>TA</i>		1.199*	-2.509*
<i>EQUITY</i>		6.111**	72.735*
<b>Diagnostic Statistics</b>			
R – squared		0.785	0.850
F – statistic		8.096	19.923
Prob(F-statistic)		0.000	0.000
Akaike info criterion		3.401	2.262

\* Statistically significant at 5%; \*\* Statistically significant at 1%.

Additionally, the results indicate a significantly negative effect of non-executive directors (*NON\_EXEC*) on *NIM* (-0.011,  $p < 5\%$ ), suggesting that having more non-executive board directors could potentially decrease bank's performance. Finally, a stronger effect was found in Model 2, in the same direction with Model 1, of foreign directors (*FOREIGN*) on bank performance with statistically significant at the level of 1% compared to the significance of Model 1 (5%).

Regarding Model 3, in which bank performance was measured with earnings before tax as a percentage of average book-value of total assets (*PT\_ROA*), the findings confirmed those of Model 1 (*ROA*) in all board structure variables. These findings did not produce different outcomes in terms of significance or sign for all predictor variables (*BS*, *IND*, *FEMALE*, *FOREIGN*, *DUALITY*), supporting research hypotheses (H1-H5). Regarding control variables, in the investigation of the effect of the bank size (*TA*) on bank performance (*PT\_ROA*) the results showed a negative effect (-2.509) at a significance level of 5. Finally, the findings of Model 3, in relation to Model 1, indicate weaker but still statistically significant positive relationship between bank equity (*EQUITY*) and performance (72.735,  $p < 5\%$ ).

## DISCUSSION

The results of the study are expected and consistent with prior research. The significant positive relationship between board size and bank performance corroborates the findings of prior studies which also found a positive relationship (Gafoor et al. 2018; Adams and Mehran, 2012; Andres and Vallelado, 2008). This result reinforces the argument that most board directors add expertise and contribute to the effective management of the complex banking institutions. In addition, the positive effect of the independent directors on bank performance is in line with findings in prior research (Andres and Vallelado, 2008; Georgantopoulos and Filos, 2017; Liang et al., 2013), indicating that an increase in independent directors is associated with an increase in positive bank performance. On the other hand, no evidence is found in support of the impact of non-executive directors on bank performance. A possible explanation may be that, although non-executive directors do not deal with the day-to-day management and do not maintain some form of employment relationship with the bank, they still do not meet some additional independence criteria, such as independent directors do.

Regarding board diversity, the results indicate that the presence of female directors on board increases bank performance, similarly to Gulamhussen and Santa (2015) and Garcia-Meca et al. (2015). With respect to foreign directors, it was found that their participation in the board is negatively associated with bank performance, in line with other studies in the banking sector (Garcia-Meca et al., 2015; Rafinda et al., 2018). A possible explanation may be potential communication constraints and frictions, and foreign directors' inaccessibility to obtain updated vital corporate information. Additionally, it was found that CEO duality has a significantly negative impact on performance, in convergence with similar past empirical findings (Kaymak and Bektas, 2008; Liang et al., 2013). This finding, which is in line with agency theory, suggests that in cases where the same person holds the positions of the Chairman of the board and of the CEO, agency conflicts are not adequately mitigated, resulting to a lower corporate performance.

Regarding control variables, the results support the hypothesis that bank size, in terms of total assets, has a positive effect on bank performance. These findings are consistent with previous studies, suggesting that highly capitalized banks (Liang et al., 2013; Pathan and Faff, 2013) and banks with more assets (Georgantopoulos and Filos, 2017; Kaymak and Bektas, 2008) perform better. Finally, one possible explanation for the negative effect, as opposed to the positive effect of independent directors in model 2, is that the average percentage of non-executive directors in the sample is particularly high (the mean value for non-executive directors is 68.93% and the maximum is 90%). According to Andres and Vallelado (2008, p.2572), "an excessive proportion of non-executive directors could damage the advisory role of boards since it might prevent bank executives from joining the board".

## Conclusion

This paper examines the impact of key board structure characteristics on bank performance. Exploring evidence from Greek systemic banks during 2008-2018, a strong association between board structure characteristics and bank performance was found. Specifically, the empirical findings provide evidence of a positive effect of board size, board independence and female directors on bank performance, whereas the effect foreign directors and CEO duality is found to be negative.

The study contributes a set of innovative findings to the debate of corporate governance mechanisms on bank performance (Choi and Hasan, 2005; Andres and Vallelado, 2008; Adams and Mehran, 2012; Pathan and Faff, 2013). The results also enrich and expand the past literature (Aebi et al., 2012; Orazalin et al., 2016) by

exploring the impact of board structure on bank performance in the volatile, extensively restructured and challenging case of Greek banks, in a domestic market severely hit by the global financial crisis contagion effects. An otherwise developed economy and Eurozone member country, Greece, has experienced a profound banking crisis that was the offspring of an unprecedented sovereign debt crisis, which triggered in turn institutional reforms and resulted in the largest haircut in sovereign debt history.

The results of this study have interesting implications for the banking industry by identifying areas in the corporate governance arena with substantial impact on bank performance. Regulatory and supervisory authorities can improve performance by considering the features found significant in this study. Moreover, regulators can benefit from these empirical results to strengthen corporate governance effectiveness. Features such as board independence and CEO separation from the chairman of the board have been identified as important elements to affect bank performance. Therefore, more attention should be invested towards these issues.

This study is subject to a limitation related to the sample of the survey. The conditions Greece have faced in the recent years at the economic level has created an interesting field of research, but at the same time the characteristics of this environment may limit the possibility of generalizing the results. Future studies in other environments with similar characteristics may complement the results. Furthermore, it is interesting to implement the research question to an extended sample across the financial industry, including insurance and financial services.

## CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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