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Journal of  
**Accounting and Taxation**

October-December 2022  
ISSN: 2141-6664  
DOI: 10.5897/JAT  
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*Full Length Research Paper*

## Do peers matter for tax saving?

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Received 14 June, 2022; Accepted 19 September, 2022

**This study aims to investigate if peers' tax-saving success influences a firm's tax aggressiveness. Relying on the inter-dependence amongst firms, the proposition that a firm would change its tax payment decisions is when it observes that its peer group achieves tax-saving success. A peer group was defined as the five firms most similar in size to the focal firm in the same industry. The authors examine whether peers' tax level motivates the focal firm to adjust its tax strategy by controlling the effect of industrial leaders, whose profit margins are ranked top three in the industry. It was found that firms tend to mimic the average tax performance of their peers by changing their own tax burden. Additionally, this peer effect in the tax setting is more pronounced for firms with higher tax burden, lower profitability and less cash hold, revealing the asymmetric responses of firms to their peers' performances under the above-mentioned conditions. The results also survive numerous robustness tests, including alternative measures of tax avoidance, different industry classifications and instrumental tests. The researchers provide empirical evidence of peer effects in tax payment decisions. The findings also suggest a novel way to detect tax-avoiding activities, which are likely to happen in a clustered manner.**

**Key words:** Tax-saving decision; tax aggressiveness; peer effects.

### INTRODUCTION

A number of tax studies state that the engagement of aggressive tax positions is primarily driven by firm-level attributes (Armstrong et al., 2015, 2012; Badertscher et al., 2013), profitability (Tijjani and Peter, 2020), executive incentives (Desai and Dharmapala, 2006; Gaertner, 2014; Mahenthiran and Kasipillai, 2012) and the cultural environment (Boone et al., 2013; Hasan et al., 2017). Since firms compete or interact with their peers, corporate tax decisions would respond to the tax-saving success achieved by their peers. However, the association between peer effects and tax avoidance is

largely unexplored, with only a few exceptions (Bird et al., 2018; Kubick et al., 2014; Brown, 2011; Brown and Drake, 2013). This study extends the line of research by investigating whether the average tax-saving behavior of peers has a significant economic effect on firms' tax avoidance. More specifically, the authors assume and investigate whether the firm would shift its tax level toward its peers and whether such an effect would be more pronounced when the firms have higher tax spending, lower profitability and less cash hold.

Accounting for one-third of pretax income, taxation is

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one of the primary issues handled by firms. The preceding literature documents that firms potentially maintain a related low tax level during a long period (Dyreng et al., 2010) and lower their tax burden and risk simultaneously by employing internal control (Gallemore and Labro, 2015) or information technology (Hamilton and Stekelberg, 2016). More recently, Kim et al. (2019) show that firms have their own optimal tax level and adjust their tax planning to gradually approach the optimal level, and this effect is more pronounced when firms have higher tax spending, more foreign business operations, and higher income mobility. To survive in such a competitive and dynamic business world, firms should better control their tax spending and adjust their tax strategy in a timely manner.

Based on previous studies on peer effects, the first proposition was that firms have an incentive and ability to learn from their industry peers and calibrate their tax strategy using their peers as the benchmark. Regularly interacting with others, firms have incentives to respond to the tax-saving success of peer firms to “maintain” their position.<sup>[1]</sup> For instance, Brown (2011) and Brown and Drake (2013) suggest that firms mimic the tax avoidance of other firms with whom they share board interlocks. Similarly, Kubick et al. (2014) show that product market leaders not only engage in a more aggressive tax position but also provide a benchmark of tax avoidance for their industrial peers. In addition, when firms attempt to change tax planning and implement a new tax plan, they can observe or learn about the tax positions of their industry peers from disclosure rules around taxes. This is because the reported accrual expense and the associated “real” tax payment would be disclosed by firms according to the requirements of the unique Financial Accounting Standards Board (FASB).

Alternatively, firms may not have the incentive and ability to mimic the tax strategy of their peers. First, firms may forgo potential tax-saving adjustment because they believe that the tax planning of industry peers is not “one size fits all” or that it cannot be continued for a long period. For example, extant literature has long realized that the level of tax avoidance can be affected by firm attributes (Armstrong et al., 2015; Badertscher et al., 2013), executive preference (Dyreng et al., 2010; Gaertner, 2014), corporate social responsibility (Mgbame et al., 2017) or cultural environment (Boone et al., 2013; Hasan et al., 2017). Each firm has its own unique optimal tax level (Kim et al., 2019) and has its own preference to engage in aggressive or conservative tax positions. Second, firms may ignore the “industry benchmark” if they feel that the benefit of tax savings does not outweigh the cost of tax planning adjustment. For example, prior literature suggests that capital providers, both shareholders and debt holders, charge different premium levels to compensate for the risk stemming from an aggressive tax position (Cook et al., 2017; Goh et al., 2016; Hasan et al., 2014). Therefore, whether the peer

effect has an influential impact on tax avoidance is still an open research question.

To further investigate the peer effect on tax avoidance, the authors examine the conditions under which the peer effect would be more pronounced. First, they assume that firms paying more tax expenses have a higher incentive to mimic the tax strategy of their peers because Kim et al. (2019) suggest the asymmetric adjustment speed of tax avoidance.

Second, firms are more likely to learn from their peers rather than the whole industry when their profitability and (or) cash holdings are limited. Kubick et al. (2014) demonstrate that market leaders can engage in a more aggressive tax position through bargaining power and that its tax-saving strategy would be “copied and pasted” by its nonleader industry peers. However, the tax-saving strategy engaged by market leaders may involve better internal control, a high-quality information system or more professional tax consultants, which are not easily accessible by nonleader industry peers. The mimicry of industry leaders would be constrained by their own economic resources or calibration ability. In addition, the cost of unsuccessful tax-avoiding activities is more likely to attenuate the ability to maintain a competitive position. Firms will be more conservative about the tax adjustment if their calibration ability is below the average or median level. In line with this idea, it was posited that firms with higher tax burden, lower profitability and less cash holding are more likely to mimic the peers surrounded rather than the industry leaders or the overall peers.

Using the methodology of Dyreng et al. (2010), Bird et al. (2018) document how a firm’s tax saving outcome affects the subsequent action of its peers. To distinguish this paper from Bird et al. (2018), the authors follow Manski (1993) and define the peer effect as the average performance of a group impacting the behaviors of an individual. For each firm-year observation, peer group was defined as firms of similar size in the given industry-year and calculate the average tax level of each peer group. In both univariate and multivariate tests, the authors investigate whether a firm’s tax level can be affected by its peers’ average tax level while controlling the average tax level from the whole industry and market leaders. Using the effective tax rate (both book and cash effective tax rate) to measure tax outcomes, it was found that firms’ tax behaviors are associated with their peers’ tax saving outcomes in the prior year, indicating that firms attempt to mimic their industry peers or market leader incrementally.

Prior studies indicate that tax decisions can be affected asymmetrically by firm attributes or environmental factors (Lin et al., 2019; Gao et al., 2019; Kim et al., 2019; Salaudeen and Eze, 2018). To investigate the potential asymmetry, the authors construct three indicative variables (*above*, *LP*, *LC*) to measure whether the firms’ tax spending, profitability and cash hold are above or below the median level and then separately examine

whether the firms with higher tax expenses, lower profitability and less cash reserves would respond differently to the peers' tax saving performance. The authors document that firms are more likely to mimic their peers' tax strategies when firms have higher tax spending, lower profitability and less cash reserves. Additionally, when firms pay higher tax spending than their peers, mimicry would be much faster than mimicry with a lower tax burden, which is consistent with the finding of Kim et al. (2019).

Overall, this study investigates whether corporate tax decisions can be affected by the tax saving outcome of peer firms and is closely related to two recent studies, Kubick et al. (2014) and Bird et al. (2018). Kubick et al. (2014) examine the relation between product market power and tax avoidance and found that firms with higher market power engage in a more aggressive tax position and that non-industry leader peers mimic the tax strategy of product market leaders.

Framing executive turnover as an external shock, Bird et al. (2018) examine whether the tax avoidance of a specific firm can affect the tax behaviors of its peers and found that peer groups would respond to the negative shock of a specific firm with executive turnover and lower tax burden.

Although this study is similar to Kubick et al. (2014) and Bird et al. (2018), it differs from these two studies in several important ways. First, the study of Kubick et al. (2014) focuses on peers with market competitive advantages and defines market leaders as firms ranked in the top three price-cost margins within a given industry year. Following Bird et al. (2018), define peers as a group of five firms with similar firm sizes within the same industry. While Bird et al. (2018) investigates how peer group members are influenced by an individual firm who recruits a new executive and reduces taxes simultaneously, their focus was on how an individual firm would take the average tax level of its peers as the benchmark to adjust its tax burden. In addition, the conclusion of Bird et al. (2018) exists only in the book effective tax rate, while the empirical results apply for both the book and cash effective tax rates. Finally, the result is incremental to the whole industry level and market leader and suggests that firms with higher tax expenses, lower profitability and fewer cash reserves have a higher propensity to mimic their peers rather than the whole industry or market leader.

Understanding how the average tax performances of a firm's peers affect its own tax behavior is important for several reasons. First, this study adds to a growing body of research examining peer effects in various corporate decisions. Prior studies document peer effects in capital structure choice (Leary and Roberts, 2014), stock split decisions (Kaustia and Rantala, 2015), risk aversion and trust (Ahern et al., 2014), financial misconduct (Parsons et al., 2018), and payout policy (Grennan, 2019). The tax issue has a nondiscretionary nature, and this setting is

much different from the previous settings. The authors contribute to this line of research by providing empirical evidence of peer effects in tax decisions.

Second, a cross-sectional variation was explored in tax avoidance behavior by incorporating concepts of peer effects (Hanlon and Heitzman, 2010). Prior empirical research in the tax literature recognizes the importance of peers. For example, Brown (2011) and Brown and Drake (2013) concentrate on peers sharing board interlocks, and Kubick et al. (2014) focus on market leaders who engage in aggressive tax positions through competitive advantages. Defining peers as firms of similar size, Bird et al. (2018) suggest that firms do not make tax decisions in isolation and that the external shock of a firm can affect others' tax behaviors. In contrast, this paper indicates that a firm responds to the average tax level of peer firms and that such peer effects vary when firms have a higher tax burden, lower profitability and fewer cash reserves.

Finally, the findings have practical implications in addition to the theoretical issues. If a firm adjusts its tax behavior to respond to its peers' tax saving success, it is possible that tax avoiding activities would cluster in the peer group. Once the Inland Revenue Department detects the irregularity of the tax law, it would be better to increase the audit probability of firms of similar size within the same industry.

The rest of the paper continues as follows. The next section provides a review of the literature and develops hypotheses. Section 3 introduces the research method, and Section 4 interprets the empirical results. After that, conclusions were presented in the last sections.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The preceding literature proposes and indicates that a firm learns from and responds to the performance of its peers in various corporate decisions. Focusing on the information environment, Seo (2021) suggests that the financial performance disclosed by peers reduces external uncertainty and induces firms to issue more reliable and accurate information. Shroff et al. (2017) also propose that when a firm's specific information is limited, its cost of equity is negatively related to the information environment of peers. Additionally, prior studies suggest that firms speed up the time taken to split their stock in response to peer actions (Kaustia and Rantala, 2015) and are more likely to pay out dividends if their peer firms have recently done so (Grennan, 2019).

Although prior studies point out the effect of peers on corporate decisions, how a firm's tax behaviors can be affected by its peers' average tax performance is underexplored. Based on the substantial literature related to peer effects, it was first posited that a firm has an incentive and ability to mimic its peers' tax strategies to "keep up" with its peers. In the United States, the

corporate tax potentially accounts for one-third of the pretax income and is regarded as a substantial proportion of the total cost. Since better control of tax spending provides more competitive advantages, firms will maintain a low tax level for a long period (Dyrenge et al., 2008) and provide more incentive for executives to accomplish this objective (Dyrenge et al., 2010). Likewise, firms are willing to develop internal control systems (Gallemore and Labro, 2015), high-tech information systems (Hamilton and Stekelberg, 2016) or multigeographic operations (Gupta and Mills, 2002) to lower their tax burden and risk simultaneously. In practice, CFOs or the heads of tax departments are responsible for tax planning and need to explain and justify the firm's tax level compared to its industry peers. In this regard, a firm could attempt to learn from its peers and devote resources to adopt a similar tax planning policy to keep up with others.

In addition to the incentive, the peer effect potentially enhances the simulation ability. Grouping peers by different standards, extant studies document that a firm learns from and responds to its peers' tax-saving activities. For example, defining peers as firms sharing board interlocks, Brown (2011) and Brown and Drake (2013) found that firms have a higher propensity to adopt aggressive tax planning if their peers employ tax-saving activities. Kubick et al. (2014) provide empirical evidence that the aggressive tax planning employed by market leaders is "copied" and "pasted" by nonleader industry peers. Additionally, Bird et al. (2018) use tax rate changes associated with executive turnover as exogenous shocks and suggest that peer firms respond to these shocks by calibrating their book effective tax rates in the same direction. The tax-saving success achieved by peers generates valuable information for managers, and precise information can increase the likelihood of tax planning adjustment and release the concern of unsuccessful tax planning.

On the other hand, tax planning adjustment is subject to a firm's unique condition. A firm is unlikely to calibrate its tax saving activities if the cost outweighs the benefits (Kim et al., 2019). In this sense, firms may maintain or even increase their tax expenditure or payment if they believe that their prior tax position cannot be continued or that the future tax risk is beyond tolerance. In addition, tax-planning adjustment requires resource donation, such as better internal control, information systems or multi area operations. If a firm is subject to resource constraints, it is unlikely to adopt a new tax saving strategy and still adopt its prior tax planning. Taken together, the authors cannot provide a consistent assumption related to the peer effect in tax issues and propose the following null hypothesis:

H1: The current-period tax aggressiveness of an individual firm is unrelated to the prior-period tax aggressiveness of its peer firms.

Having documented the evidence of peer effects in tax avoidance, a cross-sectional test was performed to understand the underlying mechanisms. First, tax planning adjustment is apparently subject to the current tax level (Kim et al., 2019). As peers' aggressive tax position provides more incentives for individual firms to adjust their tax policy, it was expected to find stronger peer effects for firms burdening higher tax expenses. Second, as economic resources are scarce, individual firms prefer investment with higher returns and predictability. Compared to their well-performing peers, firms with lower profitability potentially have a greater incentive to learn from and respond to their peers and have a higher propensity to adjust their tax behaviors. Finally, as the potential costs of an unsuccessful tax strategy would be greater for firms characterized by less cash reserves, it would be more likely to alter their tax behavior and adopt a new tax strategy. Overall, the argument mentioned above leads to the second hypothesis:

H2: The peer effect is stronger when an individual firm is characterized by a higher tax burden, lower profitability and less cash reserves.

## RESEARCH METHODOLOGY

### Sample

This study sample includes all firms-year listed in the COMPUSTAT database from 1994 to 2019. The sample begins in 1994 because it required all the observations to have five years of continuously available information to calculate the long-term effective tax rate. Firms in the financial (SIC codes 6000-6999) and utilities (SIC codes 4900-4999) industries was excluded, as they face different regulatory and institutional environments. The authors remove firms with negative total tax expenses (Compustat TXT), cash taxes paid (Compustat TXPD), or negative pretax book income before special items (Compustat PI - Compustat SPI) because these firms are in a different tax-planning position compared to firms traditionally examined in this line of research (Dyrenge et al., 2008). In addition, to alleviate the observations with extreme operational conditions, any firms with negative sales (Compustat SALE), negative shareholders' equity (Compustat CEQ), and less than five million total assets (Compustat AT) would also be eliminated from the sample. Finally, to further avoid the influence of outliers, the authors' winsorize all continuous variables other than the effective tax rate at the 1st and 99th percentiles.

### Measure of tax avoidance

Prior studies have regarded tax avoidance as any firm behavior that reduces explicit tax spending (Hanlon and Heitzman, 2010; Dyrenge et al., 2008). To capture the firm's overall tax burden on an accrual basis, the book effective tax rate (ETR) was employed, which is computed as the ratio of total tax expense (Compustat TXT) to pretax book income minus special items (Compustat PI - Compustat SPI), to measure tax avoidance.<sup>[2]</sup> In the robustness analysis, tax avoidance is also measured as the firm's cash effective tax rate (CETR), which reflects both temporary and permanent differences.

Dyreg et al. (2008) demonstrate that tax avoidance measured annually can be a noisy proxy due to fluctuations over years. Therefore, to minimize the transitional effect, two different time windows were used to calculate the long-run tax avoidance in addition to the annual ETR. The long-run book effective tax rate, ETR3 and ETR5, was computed as the sum of total tax expense (Compustat TXT) from year t-2 to year t and year t-4 to year t, divided by the sum of pretax book income less special items (Compustat PI - Compustat SPI), accumulated over the corresponding time period.

Consistent with Dyreg et al. (2008), all effective tax rate measures were constrained to fall within the [0,1] interval to ensure a valid economic interpretation related to tax avoidance. To summarize, lower effective tax rate values suggest greater tax avoidance.

### Determining peers and leaders

To investigate how peers affect a firm's tax planning, the authors identify industry peers and market leaders for each firm-year observation and calculate the lagged average ETRs of those groups. For the industry peer group, the authors follow Bird et al. (2018) and select five firms

$$TAX_{i,t} = \alpha_0 + \alpha_1 Peer LTAX_{j,t} + \alpha_2 Industry LTAX_{j,t} + \alpha_3 Leader LTAX_{i,t} + \alpha_4 LTAX_{i,t} + \alpha_{5-15} FirmLevel Controls_{i,t} + Industry_j + Year_t + \varepsilon_{i,t} \quad (1)$$

The dependent variable (*TAX*) is one of the main proxies for tax avoidance, represents for *ETR*, *ETR3*, and *ETR5*. The variable of interest (*Peer LTAX*) is the lagged, average ETRs for peers with similar firm sizes mentioned above, namely, *Peer LETR*, *Peer LETR3*, and *Peer LETR5*, respectively. The authors explicitly include controls for the average tax level within the industry (*Industry LTAX*, namely, *Industry LETR*, *Industry LETR3* and *Industry LETR5*, respectively) and market leader (*Leader LTAX*, namely, *Leader LETR*, *Leader LETR3* and *Leader LETR5*, respectively) in the main regression models to release the possibility that primary finding stems from the corporate tax behaviors of industry or market leaders shown in Kubick et al. (2014).

In the multivariate analysis, they first control general firm-level attributes, namely, profitability (*ROA*), firm size (*Size*), leverage (*LEV*), and the market-to-book ratio (*MB*), as firm's propensity on tax avoidance will vary with the firms' profitability, firm size, interest level and capitalization ability greatly. They also include several controls that assess a firm's opportunities for engaging in an aggressive tax position (Armstrong et al., 2015; Armstrong et al., 2012; Hanlon and Heitzman, 2010), such as research and development (*RD*), foreign income (*FI*), equity method income in earnings (*Equity*), intangible assets (*Intan*), net operating losses (*NOL* and *Dummy NOL*), and free cash flow (*FCF*) in this study's specifications. Additionally, industry and year fixed effects was included to eliminate any unobservable changes that can affect the empirical result.

To test the first hypothesis, the authors estimate the coefficient of  $\alpha_1$ , which represents the extent to which a firm's tax burden is associated with the previous average tax level of its peer firms and can be interpreted as the extent to which a firm appears to mimic its industry peers of similar size. A positive coefficient for  $\alpha_1$  suggests that firms, on average, mimic the tax-saving behaviors of their peer firms.

To control the mean reversion and the use of alternative benchmarks other than peers, the authors include the average previous tax level for all firms in a given industry year. If the firms mimic their peers with similar firm sizes to a greater extent than the

with the most similar size within a given industry. More specifically, firms with the smallest absolute value of the difference in total assets from a firm in the same industry are defined as peers for that firm.

Following Kubick et al. (2014), the authors also regard the firms whose profit margin ranked in the top three within the same industry as market leaders. To provide enough selections within each industry-year, they use the Fama-French 17 industry (Fama and French, 1988) to define the selection scope. In the sample, the mean number of firms in each industry-year is 374, and the associated minimum and maximum numbers are 17 and 1,016, respectively. The industry classification standard was chosen to ensure a meaningful number of potential sample firms, even in relatively smaller industries.

### Simulation of tax-saving behaviors

This analysis investigates the extent to which firms mimic the tax saving outcomes of their peers. To answer this research question, an ordinary least squares (OLS) regression was employed based on the study of Kubick et al. (2014) that adjusts standard errors for firm-level clustering and controls for industry (*Industry<sub>j</sub>*) and year (*Year<sub>t</sub>*) effects, as follows:

industry average, then  $\alpha_1$  should be statistically greater than  $\alpha_2$ . However, if the industry average is the more important benchmark, then we would expect  $\alpha_2$  to be statistically greater than  $\alpha_1$  can be expected. The authors interpret the coefficient on Industry ( $\alpha_2$ ) with caution because they cannot disentangle the mimicking of the industry average from the natural process of mean reversion. Similarly, by including the firm's own lagged ETR for the firm, they control the possibility that the coefficient on Peers captures a firm's own individual responses to industry-wide economic events or mean reversion at the firm level.

If a firm "copies and pastes" the tax behavior of its peers, it can be postulated that a more aggressive tax position of peers will induce a firm response to a greater extent and at a faster speed. This is consistent with a scenario in which tax avoidance is deliberate and can be adjusted quickly when firms have multinational operation, lower growth potential, and income mobility (Kim et al., 2019). Kubick et al. (2014) also found that peer firms respond to negative shock from the focal firm rather than positive shock. If a firm perceives a higher average tax level among its peers of similar size, it might not have an incentive to adopt a new tax policy that is used by its peers. However, if a firm burdens a higher tax level than its peers, it might respond competitively and lower its tax expense and payment at a faster speed.

The tax planning of market leaders is an excellent benchmark when a firm learns from or competes with its peers (Kubick et al., 2014). However, the tax-planning adjustment of a firm will be constrained by its own economic conditions, such as political connections, operational areas, and information systems. Firms with smaller firm size, lower profitability or other resource constraints would be inclined to mimic their peers with similar size rather than the market leaders. To investigate the asymmetric peer effect mentioned above, several firm attributes was introduced to test the different responses to different situations. The asymmetric effect by modifying Equation (1) was examined to include an interaction term (*CON - Above, LP, LC*), which is a dummy variable that equals one if a firm has a higher tax level burden than its peer and has lower profitability and less cash reserves, and equals zero otherwise. The modified regression is as followed:

**Table 1.** Descriptive statistics and correlation matrix.

<b>Panel A: Descriptive statistics</b>						
<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>10th Pctl</b>	<b>Median</b>	<b>90th Pctl</b>
<i>ETR</i>	49,353	0.315	0.191	0.063	0.327	0.448
<i>Peer LETR</i>	49,353	0.297	0.105	0.167	0.295	0.427
<i>Industry LETR</i>	49,353	0.297	0.054	0.220	0.301	0.361
<i>Leader LETR</i>	49,353	0.254	0.128	0.082	0.262	0.387
<i>LETR</i>	49,353	0.297	0.212	0.000	0.321	0.445
<i>ROA</i>	49,353	0.138	0.157	0.027	0.102	0.274
<i>Size</i>	49,353	6.078	2.193	3.226	5.993	9.094
<i>FI</i>	49,353	0.014	0.034	0.000	0.000	0.053
<i>Equity</i>	49,353	0.001	0.005	0.000	0.000	0.002
<i>Intan</i>	49,353	0.172	0.239	0.000	0.066	0.506
<i>PPE</i>	49,353	0.354	0.326	0.047	0.254	0.811
<i>DNOL</i>	49,353	0.514	0.500	0.000	1.000	1.000
<i>NOL</i>	49,353	-0.004	0.073	-0.033	0.000	0.023
<i>MB</i>	49,353	3.123	3.658	0.874	2.142	5.903
<i>LEV</i>	49,353	0.196	0.221	0.000	0.139	0.481
<i>FCF</i>	49,353	0.037	0.154	-0.100	0.050	0.174
<i>RD</i>	49,353	0.029	0.060	0.000	0.000	0.101

<b>Panel B: Correlation Matrix</b>					
<b>Variable</b>	<b>ETR</b>	<b>Peer LETR</b>	<b>Industry LETR</b>	<b>Leader LETR</b>	<b>LETR</b>
<i>ETR</i>	1				
<i>Peer LETR</i>	0.120***	1			
<i>Industry LETR</i>	0.207***	0.332***	1		
<i>Leader LETR</i>	0.084***	0.129***	0.355***	1	
<i>LETR</i>	0.338***	0.110***	0.257***	0.091***	1

In Table 1, Panel A presents summary statistics for the variables used in the empirical analyses. Panel B presents Pearson correlation matrix for the dependent variables and variables of interests, and the \*\*\*, \*\*, and \* represent significance at the 1, 5, and 10% levels, respectively. All variables are defined in Appendix A. Source: Authors

$$ETR_{i,t} = \alpha_0 + \alpha_1 Peer\ LETR_{j,t} + \alpha_2 Industry\ LETR_{j,t} + \alpha_3 LETR_{i,t} + \alpha_4 CON_{i,t-1} + \alpha_5 CON_{i,t-1} * Peer\ LETR_{j,t} + \alpha_6 CON_{i,t-1} * Industry\ LETR_{j,t} + \alpha_7 CON_{i,t-1} * LETR_{i,t} + \alpha_{8-18} FirmLevel\ Controls_{i,t} + \alpha_{19-29} CON_{i,t-1} * FirmLevel\ Controls_{i,t} + Industry_j + Year_t + \varepsilon_{i,t} \quad (2)$$

## EMPIRICAL RESULTS

### Descriptive statistics and correlation matrix

Panel A of Table 1 provides the descriptive statistics of the study. A total of 49,353 observations shows that the average tax avoided (*ETR*) occupied 31.5% of the pretax income. The means of lagged tax avoidance from peer groups (*Peer LETR*), industry groups (*Industry LETR*), and leader groups (*Leader LETR*) are 29.7, 29.7 and 25.4%, respectively. The explicit tax savings shown in descriptive statistics are largely consistent with prior studies. The findings show that all average taxes avoided except tax savings from leader groups (*Leader LETR*) are approximately 30%, ranging from 0.297 to 0.315. The average tax avoided from the leader group occupied 25.4% of pretax income, which is the lowest tax among

the different groups. This is consistent with the empirical result of Kubick et al. (2014), indicating that industry leaders save more tax expenses through their market bargaining power. As the authors arrange the firms into peer groups, market leader groups and the whole industry group, the variations of average behaviors among those groups decrease gradually with the increase of stability of membership composition (from peer to industry leader) or the number of membership (from industry leader to the whole industry). Therefore, the standard deviations of tax avoidance range from 0.054 (*Industry LETR*) to 0.212 (*LETR*), which is consistent with the variation of corporate tax behaviors among the markets.

The Pearson correlation coefficients were presented in Panel B of Table 1. The univariate correlations between the *ETR* and *LETRs* are positively correlated with one



Table 2. Mimicking of tax avoidance.

<b>Panel A: Industry average as control benchmark</b>				
<b>Variable</b>	<b>Expected sign</b>	<b>(1) TAX=ETR</b>	<b>(2) TAX=ETR3</b>	<b>(3) TAX=ETR5</b>
<i>Peer LTAX</i>	+	0.061***(4.80)	0.018***(2.63)	0.01(1.35)
<i>Industry LTAX</i>	+	0.077***(1.98)	0.089***(2.10)	0.015(0.40)
<i>Leader LTAX</i>	+	-0.006(-0.43)	-0.013*(-1.70)	-0.008(-0.96)
<i>LTAX</i>	+	0.264****(21.73)	0.473****(29.58)	0.688****(65.74)
<i>ROA</i>	+	-0.013(-0.62)	0.061****(3.91)	0.077****(4.18)
<i>Size</i>	+	0.003****(3.63)	0.006****(5.28)	0.000(-0.04)
<i>FI</i>	-	-0.129****(-2.86)	-0.045(-1.20)	0.035(1.08)
<i>Equity</i>	-	-0.528*(-1.82)	0.237(0.97)	0.089(0.46)
<i>Intan</i>	-	0.021****(2.93)	0.020****(2.71)	0.034****(2.93)
<i>DNOL</i>	-	-0.007*(-1.75)	-0.017****(-4.59)	-0.016****(-4.77)
<i>NOL</i>	-	0.067****(4.15)	0.025(1.33)	0.060****(3.94)
<i>MB</i>	-	0.000(-1.50)	-0.001(-0.95)	0.001(1.32)
<i>LEV</i>	-	-0.034****(-4.56)	-0.038****(-4.24)	-0.023****(-2.85)
<i>FCF</i>	-	-0.002(-0.19)	-0.041***(-2.22)	-0.062***(-2.29)
<i>RD</i>	-	-0.182****(-7.91)	-0.137***(-1.98)	-0.034(-1.02)
Industry and year fixed effects		Yes	Yes	Yes
Standard errors clustered by firms		Yes	Yes	Yes
N		49,353	49,353	49,353
R-sq		15.2%	51.6%	71.1%
<b>Panel B: Industry average excluded market leaders as control benchmark</b>				
<b>Variable</b>	<b>Expected sign</b>	<b>(1) TAX=ETR</b>	<b>(2) TAX=ETR3</b>	<b>(3) TAX=ETR5</b>
<i>Peer LTAX</i>	+	0.061****(4.79)	0.018****(2.64)	0.01(1.33)
<i>Non-leader Industry LTAX</i>	+	0.074***(2.02)	0.082***(2.08)	0.02(0.48)
<i>Leader LTAX</i>	+	-0.002(-0.12)	-0.008(-1.10)	-0.01(-0.95)
<i>LTAX</i>	+	0.264****(21.72)	0.474****(29.56)	0.688****(65.41)
Firm-level Controls		Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes
Standard errors clustered by firm		Yes	Yes	Yes
N		49,353	49,353	49,353
R-sq		15.2%	51.6%	71.1%

This table reports results from estimating the multivariate regression (1) TAXs are ETR, ETR3 and ETR5 in Column 1 to 3, respectively. The industry control benchmarks are lagged industry average tax, Industry LTAXs, in Panel A and lagged industry average tax excluding market leaders, Non-leader Industry LTAXs, in Panel B. For brevity, industry ( $\varphi_i$ ) and year ( $\tau_t$ ) are not reported. All other variables are defined in Appendix A. Standard errors are clustered by firm. \*, \*\*, and \*\*\* denote significance at the  $p < 0.10$ , 0.05, and 0.01 levels, respectively.

Source: Authors

another. From the perspective of univariate correlations, a firm's tax behavior in the current year is highly correlated with its own performance (0.338, at the 1% significance level), industry-wide average (0.207, at the 1% significance level), product market leader (0.084, at the 1% significance level) and peers of similar size (0.120, at the 1% significance level) in the prior year. However, readers were cautioned to avoid being over reliant on these simple correlations, as they do not control for other determinants of tax avoidance. These correlations suggest the need for multivariate tests that

can control for potential alternative explanatory factors, which was explained below.

### Main results

To test Hypothesis 1, Table 2 presents the simulation of tax behaviors by estimating Equation (1). The dependent variable is firms' tax avoidance (*TAX*), proxied by *ETR*, *ETR3* and *ETR5* in Columns (1) to (3), respectively. The main variable of interest is *Peer LTAX*, which is measured



**Table 3.** Asymmetric peer effects.

Variable	Expected sign	(1) <i>CON=Above</i>	(2) <i>CON =LP</i>	(3) <i>CON =LC</i>
<i>Peer LETR</i>	+	0.103***(5.04)	0.040***(2.76)	0.042***(2.59)
<i>Industry LETR</i>	+	0.100**(2.43)	0.107**(2.54)	0.038(0.87)
<i>Leader LETR</i>	+	0.025(1.28)	-0.006(-0.41)	0.013(0.69)
<i>LETR</i>	+	0.361***(18.42)	0.289***(17.40)	0.273***(17.81)
<i>CON</i>	+	0.137***(6.19)	0.014(0.61)	-0.013(-0.88)
<i>CON *Peer LETR</i>	+	0.044*(1.81)	0.040**(2.06)	0.037**(1.98)
<i>CON *Industry LETR</i>	+	-0.043(-0.90)	-0.037(-0.78)	0.092*(1.96)
<i>CON *Leader LETR</i>	+	-0.066***(-3.29)	0(-0.04)	-0.037**(-2.49)
<i>CON *LETR</i>	+	-0.242***(-11.98)	-0.041***(-2.68)	-0.02(-1.62)
Firm-level controls		Yes	Yes	Yes
<i>CON *Firm-level controls</i>		Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes
Standard errors clustered by firm		Yes	Yes	Yes
N		49,353	49,353	49,353
R-sq		17.1%	15.6%	15.4%

This table reports results from estimating the multivariate regression (2). *CONs* are *Above*, *LP* and *LC* in Column 1 to 3, respectively. For brevity, industry ( $\varphi_i$ ), year ( $\tau_i$ ), firm level controls and interaction term of firm level controls and *CONs* are not reported. All other variables are defined in Appendix A. Standard errors are clustered by firm. \*, \*\*, and \*\*\* denote significance at the  $p < 0.10$ , 0.05, and 0.01 levels, respectively.

Source: Authors

using *Peer LETR*, *Peer LETR3* and *Peer LETR5* in Columns (1) to (3), respectively. As shown in Table 2, Panel A, the coefficients on *Peer LETR* and *Peer LETR3* are 0.061 and 0.018, which are positively significant at the 1% level, suggesting that firms' *ETRs* are related to the average *ETRs* of their peers of similar size in the prior period (one- and three-year windows). The significant and positive coefficients imply that an individual firm would still learn from its peers of similar size when the tax behaviors of whole and market leaders are considered. These results reject the null Hypothesis 1, which suggests that firms adjust their tax positions by mimicking the tax behaviors of their peers in addition to the industry and leader groups.

In this multivariate analysis, the simulation of industry-wide tax behavior is missing when tax avoidance is measured within a five-year window (Column 3), and the mimicking of industry leaders, which is shown in Kubick et al. (2014), only exists when tax avoidance is measured within a three-year window (Column 2). Although the authors observed a few insignificant coefficients on *Industry LTAX* and *Leader LTAX*, it is inappropriate to draw the conclusion that a firm's tax behavior simulates its peers rather than its industry leaders, as shown in Kubick et al. (2014). Additionally, the coefficients on *LTAX* are 0.264, 0.473, and 0.688 at the 1% significance level in Columns (1) to (3), respectively, which indicate that a firm's tax behavior is highly correlated with its own performance and that the behavior consistency increases with the longer-period measurement of tax avoidance.

The coefficients for most of the control variables are

significant and in the predicted direction. The authors rerun their main regression using industry average excluded market leaders as a control benchmark. Table 2, Panel B shows the results and are consistent with Panel A indicating that the peer effect on tax avoidance also exists when the market leaders are excluded. In other words, the mimicry of the peers' tax-saving success is not driven by the market leaders, but the peers with similar firm size. In the additional tests, the authors also rerun the main regression using other industry classifications in additional tests to supplement the conclusion.

Hypothesis 2 test whether the response to peers' average tax rate is asymmetric when the firm has a higher tax level, lower profitability and lower cash reserves. To examine this research question, three dummy variables was constructed, *Above*, *LP* and *LC*, as interaction terms. Estimating Equation (2), Table 3 presents a clear asymmetric effect. The coefficients of *Peer LETR* are 0.103, 0.040, and 0.042 in Columns (1) to (3), respectively, suggesting that when firms have lower tax expenses, higher profitability and higher cash holds are more likely to mimic the tax behaviors of their peers. The coefficients of the interaction term, *Peer LETR\*Con (above, LP, and LC)*, are 0.044, 0.040, and 0.037 in Columns (1) to (3), respectively. The significant positive coefficients suggest that firms with higher tax levels, lower profitability and lower cash holds have a higher propensity to mimic their peers. Therefore, Hypothesis 2 is accepted.

Compared to industry leaders, peers with similar firm

**Table 4.** Alternative measures of tax avoidance.

<b>Panel A: Mimicking of tax avoidance</b>				
Variable	Expected sign	(1)	(2)	(3)
		TAX=CETR	TAX=CETR3	TAX=CETR5
<i>Peer LCTAX</i>	+	0.033***(3.12)	0.014*(1.83)	0.023***(3.10)
<i>Non-leader Industry LCTAX</i>	+	0.077*(1.91)	0.029(0.56)	-0.001(-0.04)
<i>Leader LCTAX</i>	+	0.020***(2.81)	0.002(0.24)	0.005(0.79)
<i>LCTAX</i>	+	0.534***(42.12)	0.677***(79.38)	0.794***(112.02)
Firm-level Controls		Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes
Standard errors clustered by firm		Yes	Yes	Yes
N		49,353	49,353	49,353
R-sq		37.7%	59.3%	74.5%
<b>Panel B: Asymmetry peer effect</b>				
Variable	Expected sign	(1)	(2)	(3)
		CON=Above	CON=LP	CON=LC
<i>Peer LCETR</i>	+	-0.003(-0.23)	0.017*(1.82)	0.027*(1.77)
<i>Industry LCETR</i>	+	0.02(0.54)	0.054(1.28)	0.075**(2.26)
<i>Leader LCETR</i>	+	-0.006(-0.63)	0.002(0.24)	0.012(1.30)
<i>LCETR</i>	+	0.515***(34.39)	0.530***(34.60)	0.521***(41.18)
<i>CON</i>	+	-0.187***(-5.67)	0.123***(7.87)	0.018(1.06)
<i>CON *Peer LETR</i>	+	0.060**(1.98)	0.030**(2.06)	0.015(0.92)
<i>CON *Industry LETR</i>	+	0.1(1.42)	0.008(0.20)	-0.003(-0.07)
<i>CON *Leader LETR</i>	+	0.061***(2.64)	0.032***(4.29)	0.016(1.25)
<i>CON *LETR</i>	+	0.022(0.92)	-0.002(-0.18)	0.024*(1.75)
Firm-level controls		Yes	Yes	Yes
CON *Firm-level controls		Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes
Standard errors clustered by firm		Yes	Yes	Yes
N		49,353	49,353	49,353
R-sq		38.3%	38.6%	37.8%

In this table, Panel A reports results of Equation (1), where TAXs are CETR, CETR3 and CETR5 in Column 1 to 3, respectively. Panel B reports results of Equation (2), where CONs are Above, LP and LC in Column 1 to 3, respectively. For brevity, industry ( $\phi_1$ ), year ( $\tau_t$ ), firm level controls and interaction term of firm level controls and CONs are not reported. All other variables are defined in Appendix A. Standard errors are clustered by firm. \*, \*\*, and \*\*\* denote significance at the  $p < 0.10$ , 0.05, and 0.01 levels, respectively.

Source: Authors

sizes face similar operational environments, and their tax behaviors are more appropriate to simulate by firms.

### Robustness tests

In this subsection, the authors perform several supplemental analyses related to the main findings. In the first robustness test, the authors replace the GAAP effective tax rate with the cash effective tax rate (*CETR*) to rerun the main regression, and the conclusion holds when using an alternative measure of tax avoidance. In Table 4, the coefficients of *Peer LCTAX* (*Peer LCETR*, *Peer LCETR3* and *Peer LCETR5*) are 0.033, 0.014 and 0.023 at the 1, 10 and 1% significance levels in Columns

(1) to (3), respectively. The empirical result suggests that a firm mimics its peers' tax behaviors in both accounting tax expenses and cash taxes paid.

This study analysis indicates that an individual firm has a higher propensity to learn from its peers with similar firm sizes. However, the sign, magnitude, and statistical significance of these analyses may be biased for the endogeneity issue. To alleviate any concerns regarding multicollinearity and reverse causality, a two-stage least squares analysis was performed. Prior studies document that geographic operations can provide more opportunities to engage in aggressive tax activities and lower its overall tax burden (Gupta and Mills, 2002). It was believed that the average level of geographic expansion among peers can constrain the average tax

**Table 5.** Two stage least squares test.

Variable	Expected sign	(1) Peer LETR	(2) ETR
Peer GEO	-	-0.007***(-7.44)	
Peer LETR	+		0.501*(1.90)
Industry LETR	+	0.344***(22.15)	-0.092(-0.96)
Leader LETR	+	-0.011**(-2.29)	0.000(-0.03)
LETR	+	0.006***(2.66)	0.262***(40.99)
Firm-level controls		Yes	Yes
Industry and year fixed effects		Yes	Yes
Standard errors clustered by firms		Yes	Yes
N		47,208	47,208
R-sq		16.1%	10.0%

This table reports results of two-stage regression for Equation (1), where TAXs are CETR. The instrumental variable is lagged average natural logarithm of one plus the number of geographical segments among peers. For brevity, industry ( $\phi_i$ ), year ( $\tau_t$ ) and firm level controls are not reported. All other variables are defined in Appendix A. Standard errors are clustered by firm. \*, \*\*, and \*\*\* denote significance at the  $p < 0.10$ , 0.05, and 0.01 levels, respectively.  
Source: Authors

**Table 6.** Alternative industry classification.

Variable	Expected sign	(1) TAX=ETR	(2) TAX=ETR3	(3) TAX=ETR5
Peer LTAX	+	0.058*** (5.39)	0.024*** (3.48)	0.022*** (2.70)
Industry LTAX	+	0.025 (0.81)	0.089** (2.05)	-0.016 (-0.35)
Leader LTAX	+	0.011 (0.89)	-0.002 (-0.17)	0.000 (0.01)
LTAX	+	0.253*** (21.73)	0.469*** (29.26)	0.687*** (65.54)
Firm-level Controls		Yes	Yes	Yes
Industry and year fixed effects		Yes	Yes	Yes
Standard errors clustered by firm		Yes	Yes	Yes
N		48.354	48.354	48.354
R-sq		15.8%	51.9%	71.1%

Source: Authors

aggressiveness of peers but is unlikely to be correlated with the tax burden of an individual firm. Thus, the mean value of the natural logarithm of one plus the number of geographic segments in the peer group satisfies the essential requirements of the instrumental variable.

Column (1) of Table 5 shows that the coefficient of *Peer GEO* is -0.005 at the 1% significance level, suggesting that the instrumental variables are highly positively correlated with *Peer LETR*. In Column (2) of Table 5, the coefficient of *Peer LETR* is 0.501 with a t-statistic of 1.90, indicating that the association between the average tax burden among peers and the tax behavior of an individual firm remains robust after accounting for endogenous issues. As the Cragg-Donald Wald F statistic is greater than the critical value (Stock and Yogo, 2005), the documented association between peer effects and tax avoidance does not stem from any omitted variables.

It was also acknowledged that the robustness of this result is subject to peer group selection. In Table 6, 48 Fama-French industry groups were considered as

alternative industry classifications. The industry peers and market leaders were reselected to calculate the average lagged ETRs for the reconstructed peer group and leader group. Rerunning the main regression, the coefficients of *Peer LTAXs* are 0.058, 0.024 and 0.022 at the 1% significance level among all specifications from Columns (1) to (3), suggesting that the peer effect on tax avoidance is not subject to industry choice.

The results obtained from this additional analysis are quantitatively and qualitatively similar, supporting the hypothesis that an individual firm would mimic their industry peers of similar size even though the industry classification would be different.

## Conclusion

This paper investigates whether a firm's tax saving activities are highly correlated with the average tax level of its peers. Focusing on the U.S. market, it shows that

the simulation of peers' tax planning is incremental to the mimicking of average performance from whole industry peers and market leaders. Additionally, such a simulation is more pronounced when the firm has a higher tax burden, lower profitability and fewer cash reserves. It was found that firms learn from and respond to their peers' corporate tax decisions and that the magnitude of the reaction depends on firm-specific characteristics.

This paper responds to emerging literature on peer effects, which mainly focuses on dividend payments (Grennan, 2019), voluntary disclosures (Seo, 2021; Shroff et al., 2017) or stock splits (Kaustia and Rantala, 2015). The authors are not the first to examine the peer effect on tax issues. However, prior studies define peers as firms sharing board interlock (Brown, 2011; Brown and Drake, 2013) or product market leaders (Kubick et al., 2014). Although Bird et al. (2018) regard peers as firms of similar size within the same industry, they examine whether the focal firm's tax burden (GAAP ETR) can affect the average tax level among peer group members. Different from Bird et al. (2018), The authors present evidence that a firm has a higher propensity to calibrate its tax strategy once it observes the tax-saving success achieved by its peers. Using similar size instead of market leaders to capture peer groups, the authors supplement the tax issue by incorporating the peer effect into tax avoidance and provide evidence that the peer effect is incremental to the product market leader (Kubick et al., 2014) and exists in both GAAP ETR and Cash ETR. This study reveals the imitation of tax planning among peers and has significant implications for a number of corporate stakeholders. For managers, debt holders, shareholders and analysts, the prospects of the tax-planning imitation help them better evaluate the effectiveness of tax planning and financial performance. A novel way for tax authorities was also provided to detect tax-avoiding activities, which are likely to happen in a clustered manner.

The findings are subject to some limitations, however. First, even though previous studies were carefully followed to design the empirical approach, the empirical results would still be influenced by the research design choices as well as the estimation techniques. Second, while the empirical model includes a comprehensive set of attributes, the authors acknowledge that they are unable to consider all situations in the real dynamic world. Finally, similar to most tax studies, the authors estimate a firm's degree of tax avoidance with error.

It was believed that the imitations of peers exist widely apart from tax avoidance. This study indicates an avenue of future research on firms' mimicry of perceivable behaviors of its similar sized peers.

## Notes

1. In practice, a PricewaterhouseCoopers (PwC 2014) benchmarking report notes, "Heads of tax and CFOs

must be prepared to explain and justify their company's effective tax rate (ETR). As such, they must understand the spread of ETR in their industry, identify the drivers for the rate, and be able to assess their position against the ETR trends of their peer group."

2. The book ETR reflects the tax saving activities that generate permanent differences but does not capture the impact of temporary book-tax differences.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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## APPENDIX 1

Variable definitions.

Variable	Definition
TAX	<i>Book effective tax rate</i> : ETR equals to income tax expense (Compustat TXT) divided by pre-tax book income (Compustat PI) minus special items (Compustat SPI) in year t. ETR3 (ETR5) is the sum of income tax expense (Compustat TXT) covers three (five) years period divided by the sum of pre-tax book income (Compustat PI) minus special items (Compustat SPI) over the same period. LETR covers the year t-1, and LETR3 (LETR5) covers the year t-3 (t-5) to t-1.
CTAX	<i>Cash effective tax rate</i> : CETR equals to cash taxes (Compustat TXPD) divided by pre-tax book income (Compustat PI) minus special items (Compustat SPI) in year t. CETR3 (CETR5) is the sum of cash taxes (Compustat TXPD) covers three (five) years period divided by the sum of pre-tax book income (Compustat PI) minus special items (Compustat SPI) over the same period. LCETR covers the year t-1, and LCETR3 (LCETR5) covers the year t-3 (t-5) to t-1.
Peer LTAX	<i>Peer lagged effective tax rate</i> : The lagged, average TAX value of the peer firms. The observations would be excluded from the analysis if the number of observations for a given industry-year is less than 15 for Fama-French 17 industry definition. Peer firms are defined as those firms that are most similar in size within a given industry. Peer LETR covers the year t-1, and Peer LETR3 (Peer LETR5) covers the year t-3 (t-5) to t-1.
Industry LTAX	<i>Industry lagged effective tax rate</i> : The lagged, average TAX value for a given industry-year. The observations would be excluded from the analysis if the number of observations for a given industry-year is less than 10 for Fama-French 48 industry definition. Industry LETR covers the year t-1, and Industry LETR3 (Industry LETR5) covers the year t-3 (t-5) to t-1.
Leader LTAX	<i>Leader lagged effective tax rate</i> : The lagged, average TAX value of the market leaders. The observations would be excluded from the analysis if the number of observations for a given industry-year is less than 10 for Fama-French 48 industry definition. Market leaders are defined as those firms in the top third of the product market power within a given industry. The product market power is measured by the price-cost margin, PCM. PCM equals the operating profit (Compustat SALE – COGS - XSGA) divided by sales (Compustat SALE) of each firm. If COGS or XSGA are missing, then the authors define operating profit as operating income after depreciation (Compustat OIADP). Leader LETR covers the year t-1, and Leader LETR3 (Leader LETR5) covers the year t-3 (t-5) to t-1.
ROA	<i>Return on assets</i> : Pre-tax income (Compustat PI) divided by lagged total assets (Compustat AT).
Size	<i>Firm size</i> : Natural log of lagged total assets (Compustat AT)
FI	<i>Foreign income</i> : Pre-tax income from foreign operations (Compustat PIFO) divided by lagged total assets (Compustat AT).
Equity	<i>Equity method earnings</i> : Equity income (Compustat ESUB) divided by lagged total assets (Compustat AT). The authors set missing observations of ESUB equal to 0.
Intan	<i>Intangibles</i> : Intangibles (Compustat INTAN) divided by lagged total assets (Compustat AT).
PPE	<i>Property, Plant and Equipment</i> : Net property, plant and equipment (Compustat PPENT) divided by lagged total assets (Compustat AT).
DNOL	<i>Presence of NOL</i> : Indicator variable equal to one if the firm has a positive tax loss carryforward (Compustat TLCF is positive) during the year, and zero otherwise.
NOL	<i>Change in NOL</i> : Change in tax loss carryforward (Compustat TLCF) during the year divided by lagged total assets
MB	<i>Market-to-book ratio</i> : Market value of equity (Compustat PRCC_F×CSHO) divided by book value of equity (Compustat CEQ).
LEV	<i>Leverage</i> : Total long-term debt (Compustat DLTT) divided by lagged total assets (Compustat AT).
FCF	<i>Free cash flow</i> : Operating cash flows minus capital expenditure (Compustat OANCF – CAPX) divided by lagged total assets (Compustat AT).
RD	<i>Research and development expense</i> : Research and development expense (Compustat XRD) divided by lagged total assets (Compustat AT).
Above	<i>Above</i> : Indicator variable equal to one if the firms' tax burden higher than its peers, and zero otherwise.
LP	<i>Low profit</i> : Indicator variable equal to one if the firms' ROA lower than the median level, and zero otherwise.
LC	<i>Low cash</i> : Indicator variable equal to one if the firms' cash holding lower than the median level, and zero otherwise.

Observations with negative shareholders' equity (Compustat CEQ), sales revenue (Compustat SALE), pretax book income (Compustat PI), total tax expense (Compustat TXT), or cash taxes paid (Compustat TXPD) are deleted. Effective tax rates (ETR, Peer LETR, Industry LETR, Leader LETR, LETR) are constrained to lie on the [0,1] interval. Utilities and financial firms and firms' total assets (Compustat AT) less than 5 million are excluded from the sample. All continuous variables are winsorized at the 1 and 99% levels. Missing values of PIFO, ESUB, INTAN, PPENT, DLTT OANCF, CAPX and XRD are set to zero.

*Full Length Research Paper*

# Information collection concern, procedural justice, and intention to use online tax software: A process model

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Received 27 July, 2022; Accepted 28 September, 2022

**The purpose of this research is to investigate the relationships among the privacy concern for information collection, procedural justice, and intention to use online tax preparation software to file tax returns. Both experimental design and survey data were utilized in this study. The experiment treatment is a privacy policy/statement that presents the procedures that the online tax software companies may use to protect clients' information privacy. A t-test was conducted for paired samples to compare the participants' information collection concern before and after the treatment. The results show support for the suggested positive effect of a privacy policy on addressing the information collection concern. Furthermore, through examining the mediation model on the survey data, we find that the taxpayers' perceived procedural justice mediates the relationship between their post-experiment information collection concern and intention to use online tax preparation software.**

**Key words:** Information collection concern, procedural justice, intention to use online tax software.

## INTRODUCTION

The market size of online tax preparation and filing services has grown rapidly in recent years. According to recent data from the Internal Revenue Service (IRS, 2022), 137.2 million tax returns out of total 145.4 million individual income tax returns (about 94%) were filed electronically in 2022. Despite the many advantages of using an online software service to prepare and file tax returns, such as reduced risk of errors, convenience, and expedited refunds (Brink and Lee, 2015), disclosing personal information online may put users at risk of privacy invasion.

The proliferation of data breaches and other misuses of online personal information in recent years have bolstered consumer concerns about their information privacy. In a recent survey conducted by Pew Research Center, about 79% of customers are concerned about how companies use their personal information (Auxier et

al., 2019). In the context of online tax software companies, Pot (2022) analyzed the top four online tax preparation companies and concluded that those companies may share the taxpayers' personal information for marketing purpose.<sup>1</sup> In addition, online tax preparation software (hereafter, "online tax software"), like any other computer software, is subject to potential hacking, viruses, account breaches, and software failures (Schwartz, 2008). For example, in July 2021, Intuit, a financial software company, announced that some of their TurboTax customers' accounts were hacked, and

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<sup>1</sup> "Section 301.7216-3 provides that, unless section 7216 or §301.7216-2 specifically permits the disclosure or use of tax return information, a tax return preparer may not disclose or use a taxpayer's tax return information without obtaining a consent from the taxpayer" (Rev. Proc. 2013-14, 2013-3 I.R.B. 283).

customer information was exposed. Intuit claimed that they blocked those compromised accounts immediately and notified the impacted customers (Gatlan, 2021). Other online tax software companies, such as TaxSlayer LLC and TaxAct, have also suffered similar information security breach (Saunders, 2016). In response to the growing risk of data breaches and identity theft, the IRS recently mandate the multi-factor authentication for all online tax preparation software to protect both taxpayers and tax professionals (IRS, 2020).

Based on their finding that taxpayers have a high information collection concern (ICC) in making their decisions about using online tax software, Chu et al. (2019) call for more research to investigate intervening mechanisms that individual firms can adopt to reduce taxpayers' concerns and increase their intentions to choose online tax software to prepare and e-file tax returns. However, most studies in the literature have mainly focused on what causes information privacy concerns (Kauffman et al., 2011; Bansal et al., 2010; Malhotra et al., 2004), the mediating mechanism in the linkage between taxpayers' ICC and their willingness to use online tax software are understudied.

Literature review reveals the following gaps. First, privacy policy, as a powerful mechanism to reduce information privacy concerns, has been investigated in many fields, such as human resource management, management information systems, marketing, and e-commerce (Li et al., 2020; Martin et al., 2020; Tsai et al., 2011; Li and Santhanam, 2009; Hui et al., 2007). Meanwhile, the study of privacy policy is limited in the context of online tax preparation, which requires the collection of comprehensive and highly sensitive personal information. Second, the procedural justice theory has provided a theoretical lens to explain the effect of privacy policy (Malhotra et al., 2004).

However, taxpayers' perception of the justice or fairness of the procedures in the privacy policy and what role it plays in this linkage between taxpayers' ICC and their intentions to prepare and file tax returns online are not explicitly investigated.

To address those gaps in current literature, a process model was developed as shown in Figure 1, combining the within-subjects experiment design with survey research. The process starts with surveying the background of experiment participants (taxpayers) and their privacy concerns of information collection. Then, the privacy policy was given to them to read as the experiment treatment. After that, we survey the participants again regarding their post-experiment ICC, perceptions of procedural justice, and their willingness to use online software to prepare and e-file tax return. We argue that after reading the privacy policy, which

describes the procedures that online tax software vendors use to protect the information collected from clients, the experiment participants (taxpayers) will reduce their information collection concern. Furthermore, it was expected that the participants' perception about the fairness of the procedures presented in the privacy policy will mediate the linkage between their post-experiment ICC and their intentions to use online tax software.

The study makes the following contributions. First, it adds to the prior literature that examines how the privacy policy/statement alleviates consumers' privacy concerns. It was found that providing a privacy statement that enhances participants' perception of procedural justice does reduce their privacy concerns and thus they are more willing to use online tax software.

Second, the study contributes to the procedural justice literature by providing another example of how the perceived procedural fairness may affect people's decisions. Our evidence suggests that perceived procedural justice mediates the relationship between information collection concern and the intentions to use online tax software.

Finally, the findings provide tax practitioners and commercial tax software companies with a way to address potential customers' privacy concerns. The authors demonstrate that the procedural justice conveyed to the taxpayers through the privacy statements can alleviate their privacy concerns, thus increasing their willingness to use online tax software.

The remainder of this paper is organized as follows. Section 2 contains hypothesis development through a discussion of existing studies and theories used in the literature. Section 3 presents the research method. Section 4 focuses on analysis and results. Section 5 concludes this study with the discussion of contributions, limitations, and future research.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

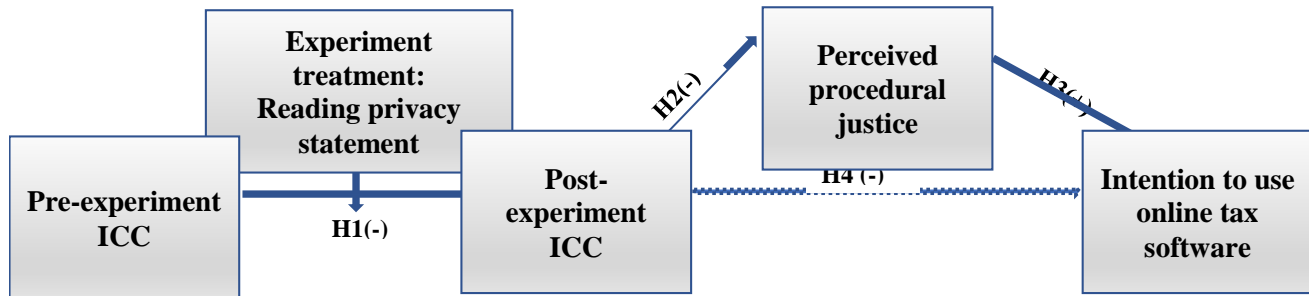
This part of the study provides a brief review of prior studies on customers' information privacy concerns, privacy policy, perceived procedural justice, and behavior intentions. Based on the review, we postulate the hypotheses on the relations among the variables as shown in Figure 1.

### Privacy concerns and privacy policy

Prior studies have shown that information privacy concerns influence individuals' willingness and intentions to engage in online transactions, especially in the current

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**Figure 1.** The process model for information collection concern (ICC), perceived procedural justice, and intention to use online tax return.

Source: Authors

era of big data and advanced data analytics (Anic et al., 2019; Dinev and Hart, 2006; Ichihashi, 2020; Malhotra et al., 2004; Martin et al. 2020; Okazaki et al., 2020; Stewart and Segars, 2002; Van Slyke et al., 2006). Customers with strong concerns may think that the requests for personal information are invading their privacy, and it is not safe to disclose information, especially online. As a result, they may react negatively to the requests by refusing to provide information or even ending the online transaction (Li et al., 2010, 2020; Okazaki et al., 2020). To address customer privacy concerns, prior studies have explored how companies implement novel techniques for privacy protection, such as data minimization, privacy-by-design architecture, or strong data security systems and reveal that customers are more willing to conduct the online transaction with the company only when they perceive the protection as well regulated (Martin et al. 2020).

As discussed in Wang et al. (2019), the growing challenges of data breaches and misuse of collected data trigger the governments around the world to implement more strict regulations to protect customers' personal information online, such as the European Union's General Data Protection Regulation (GDPR 2018) and the California Consumer Privacy Act (CCPA, 2018) (Wang et al., 2019). Recent studies show that GDPR had made some progress in protecting users' data and in reducing customers' online privacy concern, but more progress is warranted (Zaem and Barber, 2020; Linden et al., 2020; Martin et al., 2020).

The literature has examined the effect of a privacy policy as an important tool for organizations to display their regulations for addressing privacy concerns (e.g., Hui et al., 2007; Li and Santhanam, 2009; Malhotra et al., 2004; Pavlou et al., 2007; Tsai et al., 2011). In terms of the online customers' information privacy concerns, Malhotra et al. (2004) find that customers' awareness of privacy practices offered by online companies significantly affect their concerns for information privacy. Using a field experiment, Hui et al. (2007) invite the participants to visit an experimental website with or without a privacy statement and find that the participants

are more likely to share their personal information online when there is a privacy statement displayed by the website. Furthermore, as shown in Tsai et al. (2011), customers are more willing to engage in transactions and purchase items with a higher price from a website that displays the privacy policy and practices.

Comparatively speaking, the e-commerce settings in previous research only involve the disclosure of relevant basic personal information, while a tax return requires more private and comprehensive data from taxpayers. However, the privacy statement used by the online tax software companies has been understudied. Li and Santhanam (2009) find that, to reduce prospective employees' concerns about the collection of highly sensitive information, the privacy statement should have detailed explanation for the following components: what information will be collected, how the information will be used, the procedures for securing the information and giving self-control, and how to communicate concerns and questions. Therefore, to test the effect of a privacy policy in the setting of online tax return, besides consulting various privacy policies for online tax software, we developed a privacy statement that incorporated all the above-mentioned components.<sup>2</sup> It was argue that, by explicitly displaying such a privacy statement for the research participants (taxpayers) to read, their ICC will be reduced. Hence, we posit that:

**Hypothesis 1:** *After reading the privacy statement, taxpayers will be more likely to have less ICC for using online tax software.*

### The role of perceived procedural justice

Procedural justice/fairness is about the perceived fairness of the procedures by which decisions are made to resolve disputes and allocate resources (Leventhal, 1980; Thibaut and Walker, 1975; Tyler, 1990). According to Leventhal (1980), people will perceive the procedures

<sup>2</sup> Available upon request.

to be fair if they feel the procedures are to: (1) be applied consistently across people and across time, (2) be free from bias, (3) have accurate information collected and used in making decisions, (4) have some mechanism to correct flawed or inaccurate decisions, (5) conform to personal or prevailing standards of ethics or morality, and (6) have the opinions of various groups affected by the decision taken into account. The literature has shown that people are more likely to accept an organization's decisions and follow its directions when people feel that that organization's procedures are fair (Murphy, 2004).

In the research field of information privacy, prior literature has demonstrated that the awareness of fair procedures can alleviate privacy concerns associated with the collection and usage of personal information (Culnan, 1995; Culnan and Armstrong, 1999; Li and Santhanam, 2009). Based on an analysis of the data from the 1991 Harris-Equifax Consumer Privacy Survey, Culnan (1995) finds that consumers who are aware of the opportunity to remove their names from mailing lists are less likely to have privacy concerns than consumers who are unaware. Li and Santhanam (2009) find that the alleviation of prospective employees' information privacy concerns is associated with their perception of the justice of the procedures presented in the company's privacy policy. It was anticipated that the attitude changes of the experiment participants will follow the same reasoning. Therefore, we posit that:

**Hypothesis 2:** *Post-experiment ICC is negatively related to perceived procedural justice.*

The procedural justice theory predicts that the perceived procedural justice leads to people's obedience or disobedience behavior (Tyler, 1990). In the context of the workplace, procedural justice has been shown to favorably affect job performance and work attitudes (Colquitt, 2001; Cheng, 2014). Colquitt (2001) use the structural equation modeling to show the positive impact of procedural justice on leader evaluation, rule compliance, commitment, and helping behavior. By conducting a survey of employees working in manufacturing companies in Taiwan, Cheng (2014) find that perceived procedural justice is highly associated with employees' performance standards.

This procedural justice theory also has been widely used in the tax compliance research (Doyle et al., 2009; Faizal et al., 2017; Murphy, 2003). Murphy (2003) finds that when taxpayers view the tax collection procedure as being unfair, they are less likely to comply with the tax law. By analyzing the compliance behaviors related to three different types of reminder letters sent to 347 actual taxpayers who didn't file their tax return by the due date in Ireland, Doyle et al. (2009) find that the communications regarding the principles of procedural justice encourage the taxpayers' voluntary compliance. Faizal et al. (2017) used questionnaires to collect

perceptions from individual taxpayers and find that procedural justice affects tax compliance. Based on the previous studies, we argue that after reading the privacy statement, taxpayers who perceive the procedures as being fair are more likely to use online tax software to prepare and file tax returns. In another words, perceived procedural justice mediates the relationship between post-experiment ICC and willingness to use online tax software. As a result, we posit that:

**Hypothesis 3:** *Perceived procedural justice positively relates with intention to use online tax software.*

**Hypothesis 4:** *Perceived procedural justice mediates the relationship between post-experiment ICC and intention to use online tax software.*

## METHOD

### Participants and procedures

To test hypotheses, experiment design and survey design for data collection was employed. A number of methods are utilized to improve the experiment validity. First, we adopt the within-subjects design, which allows us to control the individual differences in the experiment and compare ICC for the same participants before and after the experiment treatment. Second, students (taxpayers) enrolled in several sections of accounting and management courses at a public university in the United States participated in the research. To reduce sample bias, those course sections were randomly selected, students' participation was completely voluntary, and consent forms were obtained prior to the study. Third, the participants were blinded to the experiment, unaware of what the experiment treatment was. They were only informed that the research was about information privacy concerns when using online tax software, and their response and identities were kept confidential.

In addition, to enhance internal validity, the experiment in all engaged course sections utilizes the following standard steps. First, the participants were given a pre-experiment questionnaire to collect information about their background and to measure their pre-experiment ICC. Next, the privacy statement (Appendix), used as the experiment treatment, was distributed to each participant to read. After reading the privacy statement, participants completed a questionnaire to measure their post-experiment ICC, perceived benefits (control variable), perceived procedural justice, and intention to use online tax software.

Of the 167 students who volunteered for participation, 144 completed all variables of interest (86% response rate); their average age is 21.92 years ( $SD = 3.13$ ) and 54.86% are female. The majors of those participating in the study include 11.81% accounting, 27.78% business administration, 9.72% computer information systems, 2.08% culinary arts, 9.72% finance, 0.69% mathematics, 19.44% management, 11.81% marketing, 0.69% nursing, 0.69% psychology, and 5.56% unspecified.

### Measures

#### Pre-experiment ICC

Information collection concern was measured with three items adapted from Smith et al. (1996) on a seven-point scale anchored with strongly disagree and strongly agree. The three items relevant in the online tax return settings are "I am bothered by the requested

personal information that most online tax software companies require," "I think twice about supplying my personal information that most online tax software companies require," and "I am concerned that online tax software companies may be collecting too much information about me." The Cronbach alpha was 0.84.

#### **Post-experiment ICC**

The same three items were used to measure participants' information collection concerns following the experiment treatment (Cronbach alpha = 0.90).

#### **Perceived procedural justice**

Five items on a scale ranging from 1 (strongly disagree) to 7 (strongly agree) were generated for assessing perceived procedural justice. Those items were based on the procedural justice instrument developed in Colquitt (2001) and adapted in accordance with the online tax return context. The scale items are "Overall, the online tax software company appears to be bias free," "I believe I can count on the online tax software company to be fair and consistent with my personal information," "The online tax software company upholds ethical and moral standards with my information," "I understand the protection the online tax software company offers for my sensitive information," and "The online software company is fair in clearly offering information concerning privacy" (Cronbach alpha = 0.92).

#### **Intention to use online tax software**

The intention to use online tax software was based on two items adapted from MacKenzie and Spreng (1992). The items are "Specify the extent to which you would like to use online tax software for your tax return" (1 = very unlikely and 7 = very likely), and "Specify your willingness to use online tax software for your tax return" (1 = willingly and 7 = unwillingly) (Cronbach alpha = 0.74).

#### **Control variables**

Prior studies have shown that age and gender may be related to information privacy concerns (Chu et al., 2019), and perceived benefits could be associated with the intentions to use online tax software (Brink and Lee, 2015). Therefore, in addition to age and gender, a seven-item scale was used to assess perceived benefits and was included as a control variable in this study. Those items adapted from Xu et al. (2010) are "With online tax software, I am able to access the relevant information/services at the right place," "With online tax software, I can get the immediate information/service," "With online tax software, I am able to access the relevant services whenever I want to," "Online tax software can provide me with personalized services tailored to my tax return," "Online tax software can provide me with the kind of service I might like," "Using online tax software can save me time and money on filing my tax return," and "Using online tax software costs less" (Cronbach alpha = 0.85).

## **DATA ANALYSIS AND RESULTS**

### **Descriptive statistics and correlation analysis**

Table 1 displays the means, standard deviations, and correlations for our study variables. As shown in Table 1,

the variables are related as we expected. For example, post-information collection concerns are negatively related with perceived procedural justice, and procedural justice is positively related with the intention to use online tax software.

### **Analysis results for Hypothesis 1**

Hypothesis 1 states that the experiment treatment of privacy policy would reduce ratings of pre- and post-information collection concern. A paired samples *t*-test compares the means of pre-information collection concern (*Mean* = 4.64, *SD* = 1.32) and post-information collection concern (*Mean* = 4.03, *SD* = 1.51). The results show the privacy statement significantly reduced participants' information collection concern ( $t(143) = 3.91$ ,  $p < .001$ ), supporting Hypothesis 1.

### **Analysis results for Hypotheses 2 through 4**

#### **Confirmatory factor analysis results for model fit testing**

Before proceeding with hypothesis testing, the authors assess the fit of their proposed model structure using Mplus software (Muthen and Muthen, 2007). This confirmatory factor analysis (CFA) examines the model fit of their four-factor hypothesized structure (post-experiment ICC, procedural justice, intention to use online tax software, and perceived benefits [control]). The four-factor structure fit the data relatively well:  $\chi^2(113) = 218.50$ ,  $p < 0.001$ ; the comparative fit index (CFI) = 0.93; the Tucker-Lewis index (TLI) = 0.91, and the standardized root mean squared residual (SRMR) = 0.06, using criteria established by Hu and Bentler (1999). Also, because both perceived procedural justice and perceived benefit are argued to be related with the behavior intentions, we combined these two factors into one construct. This produced a poorer fit:  $\chi^2(116) = 535.96$ ,  $p < 0.001$ ; CFI = 0.71; TLI = 0.66; SRMR = 0.15. This result is significantly different from the hypothesized structure:  $\Delta\chi^2(3) = 317.46$ ,  $p < 0.001$ . Given the hypothesized model test and our nested model comparison, we proceed with using the proposed factor structure in our following hypothesis tests.

#### **Mediation model testing results**

A linear regression model was examined to test the remaining hypotheses using SPSS (Norusis, 2010). Hypothesis 2 states that post-experiment ICC is negatively related to procedural justice and Hypothesis 3 states that procedural justice is positively related to intention to use online tax software. The results of this regression analysis are shown in Table 2. As can be

**Table 1.** The means, standard deviations, and correlations among study variables.

	Mean	SD	1	2	3	4	5	6	7
Gender	0.55	0.50	---						
Age (in years)	21.92	3.13	0.15	---					
Pre-experiment ICC	4.64	1.32	0.10	0.09	(0.84)				
Post-experiment ICC	4.03	1.51	-0.02	0.06	0.11	(0.90)			
Perceived Benefits	4.82	0.84	-0.16	-0.11	-0.14	-0.16	(0.85)		
Perceived Procedural Justice	4.41	1.17	0.04	0.07	-0.06	-0.44***	0.28**	(0.92)	
Intention to Use Online Tax Software	3.85	1.66	0.08	-0.03	-0.03	-0.49***	0.20*	0.56***	(0.74)

*n* = 144; Cronbach alphas appear along the diagonal in parentheses, \**p* < 0.05; \*\**p* < 0.01; \*\*\**p* < 0.001.  
Source: Authors

**Table 2.** The regression results for Hypotheses 2-4.

	Procedural justice			Intentions to use online tax software		
	<i>b</i>	<i>SE</i>	95% <i>CI</i>	<i>b</i>	<i>SE</i>	95% <i>CI</i>
Intercept, <i>b</i> <sub>0</sub>	3.13***	0.88	[1.39, 4.87]	2.52*	1.18	[0.18, 4.86]
Gender, <i>b</i> <sub>1</sub>	0.14	0.18	[-0.21, 0.48]	0.23	0.23	[-0.22, 0.67]
Age, <i>b</i> <sub>2</sub>	0.04	0.03	[-0.01, 0.10]	-0.03	0.04	[-0.10, 0.05]
Perceived benefits, <i>b</i> <sub>3</sub>	0.33**	0.11	[0.12, 0.54]	0.09	0.14	[-0.19, 0.37]
Post-experiment ICC, <i>b</i> <sub>4</sub>	-0.32***	0.06	[-.43, -0.21]	-0.32***	0.08	[-0.48, -0.15]
Perceived procedural Justice, <i>b</i> <sub>5</sub>				0.60***	0.11	[0.38, 0.81]
<i>R</i> <sup>2</sup>		0.26***			0.39***	

*n* = 144. *b* is the unstandardized regression coefficient, \**p* < .05. \*\**p* < 0.01. \*\*\**p* < 0.001.  
Source: Authors

**Table 3.** Indirect and direct effect estimates for mediation test.

	Indirect effect			Direct effect		
	Effect	<i>SE</i>	95% <i>CI</i>	Effect	<i>SE</i>	95% <i>CI</i>
Post-experiment ICC --> procedural justice --> intentions to use online software	-0.19**	0.06	[-0.32, -0.08]	-0.32***	0.08	[-0.48, -0.15]

95% *CI* = 95% confidence intervals. The standard error (*SE*) is based on bootstrapped estimates, \*\**p* < 0.01. \*\*\**p* < 0.001.  
Source: Authors

seen in Table 2, post-experiment information collection concern negatively influences perceived procedural justice (*b* = -0.32, *SE* = 0.06, *p* < 0.001) and perceived procedural justice positively influences intentions to use online tax software (*b* = 0.60, *SE* = 0.11, *p* < 0.001) which aligns with arguments in hypotheses 2 and 3, respectively.

Next, Hypothesis 4 proposes that procedural justice mediates the relationship between post-experiment ICC and intention to use online tax software. Using the regression estimates in Table 2, the indirect effect pertaining was tested to this linkage. Because indirect effects tend to violate normality (MacKinnon et al., 2002), the authors bootstrapped 5,000 samples from their initial 144 responses for generating 95% confidence intervals

for our indirect effect estimates.

As presented in Table 3, post-treatment information collection concern was found to have an indirect influence on intentions to use online tax software via procedural justice (*Indirect effect* = -0.19, 95% *CI* [-0.32, -0.08]) with post-experiment ICC still exerting a direct influence on intentions to use online tax software (*Direct effect* = -0.32, 95% *CI* [-0.48, -0.15]) after accounting for procedural justice. Taken together, these findings support Hypothesis 4.

## DISCUSSION AND CONCLUSION

Research on online customers' information privacy

concerns has increased rapidly, yet knowledge gaps exist regarding the mechanism/mediator linking privacy concerns with behavior intentions. This study fills in the gaps in current knowledge about the mediating role of procedural justice. First, through the within-sample experiment, it was found that the privacy policy, which is developed in line with the procedural fairness criteria from Leventhal (1980), significantly reduced participants' information collection concerns. Second, the results from the structural equation modeling technique show that it is through the perceived procedural justice that the taxpayers alleviate their information collection concern and enhance their intention to use online tax-return software. These findings suggest that privacy policy must be appropriately designed to enhance taxpayers' perception of the procedural justice/fairness. By strategically using such a privacy policy, vendors' online tax software could attract and retain customers.

This study has limitations, but limitation also brings research opportunities. First, the sample consists of college students. They are also taxpayers, but to check the generalization of the results from this study, future research may consider a sample with larger variance in income, age, race, culture, and education background. Second, organization justice is a construct with three dimensions (Colquitt, 2001). In contrast with procedural justice, distributive justice is conceptualized as the fairness associated with the distribution of rights and resources, and interactional justice refers to the respect and propriety in the treatment that an individual receives as decisions are made and explanations for decisions are provided. In the context of an online tax return, future research can investigate the effects of distributive justice and interactional justice as well as the interaction effects among the three justice components. Third, it is possible that there are other mediators linking information collection concern and behavior intentions, which may or may not relate to organization justice. For example, prior studies reveal that online customers who primarily use mobile or social channels are less likely to be concerned about their privacy when they prioritize the benefits (e.g., convenience) over risks or threats to privacy (Barth and deJong, 2017). In this study, the authors took benefits as a control variable. In future study, they can compare benefits with policy justice in terms of their mediating effects. We need to continue to explore the mediating mechanism for a deep understanding of the behavior intentions of customers with high privacy concerns.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# **Redefining the taxpayer and tax administrator relationship in Nigeria: A relational agency model perspective**

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Received 31 May, 2022; Accepted 9 September, 2022

**While revisiting the agency theory and how it models the relationship between a principal and an agent, we assess, through participant observation, the optimal contract form for the ubiquitous relationship, where a principal, delegates work to an agent. This forms the basis of the study, as it attempts to redefine the relationship between the taxpayer and the tax administrator. This research is an attempt to reverse the traditional relationship between the taxpayer and the tax administrator in favor of a modern perspective of relational model theory by seeing the taxpayer as the principal and the tax administrator as the agent. This is deeply rooted in the social contract theory, in relation to the agency theory. What this redefinition is expected to do, ultimately, is to make the tax authority more taxpayer centric based on the concept of trust breeds trust, for efficient and effective tax system that would be more accountable, transparent and responsible in service delivery in the 21st century. This paper draws from the application of the social contract theory and the empirical evidences obtained from participant observation in the form of improvement of service delivery to the taxpayers by the tax administrators in the experimental agency, in alignment with the agency theory, hence coming up with the 'relational agency model'.**

**Key words:** Taxpayer, tax administrator, agency theory, social contract, relational theory, relational agency model.

## **INTRODUCTION**

In Nigeria, and like everywhere else, the taxpayers are the single most important group of stakeholders in the tax system. They are so important that they are recognized in the National Tax Policy Document of Nigeria (2012) and

the revised National Tax Policy Document (2017). Even though taxpayers' responsibilities are fundamental to the functioning of a viable tax system, they must be balanced with taxpayer rights in an equitable and justifiable manner,

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as trust breeds trust (Feld and Fray, 2002; Olokooba et al., 2018).

It is important to note that a taxpayer is an important variable in the achievement of the objectives of a Tax (Revenue) Authority. Based on this position, it is proper to define who a taxpayer is. Drawing from previous studies, a taxpayer is anyone who is subject to tax on income, irrespective of whether he pays the tax or not. The taxpayer may be an individual, company or organization liable to pay tax (Somorin, 2012; Olokooba, 2019). The individual taxpayer is traditionally seen as a resident in a society, who must be an adult of taxpaying age, earning one source of income or another that is not exempted from income tax, and can be subjected to tax deduction. In the same manner, organizations operating within the society are equally required to pay taxes on income and profits generated in the process of their business operations. However, the not-for-profit organizations are exempted from tax provided certain conditions are fulfilled.

Having define who a taxpayer is, it is of equal importance to explain further what the taxes paid are meant for. The taxes paid by the taxpayers to the authorities of government saddled with the responsibilities of collecting such, are therefore expected to be used in return by the government to provide social and economic infrastructure (facilities) for the benefit of the people in the society, whether taxpayer or not (Awodun, 2018a). This position is based on the social contract theory as enunciated by Bruner (2015), Cook and Dimitrov (2017), Bussolo et al. (2018) and El-Haddad (2020).

The scenario painted above draws a relationship between the taxpayer, the tax authority and the government, following the relational model theory (Haslam and Fiske, 1999). This relationship has been seen from different perspectives in the course of fulfillment of the obligations of the various parties in the past. What is common perspective in Nigeria is to see the tax authority as an agency of government saddled with the responsibilities of collecting taxes from the taxpayers. This is a rather conventional viewpoint. Right as this perspective may be, the emphasis placed on this relational view has given less attention to the other perspectives, and perhaps the reason for the high level of inefficiency of the tax system and low level of compliance of the taxpayers (Hofmann et al., 2014).

One of such other perspective, given less or no consideration, is the relationship between the taxpayer and the tax authority, which has not been properly defined. What we observe is that the tax authority relates with the taxpayers under a lord and master (command) relationship with the understanding that the tax authority, a product of law, is empowered to enforce and apply the law on the taxpayers to extract the due taxes from them (Kirchler and Wahl, 2010).

This approach has proven to be not so effective, with taxpayers devising methods of averting and avoiding the

payment of taxes as a result of this approach (Allingham and Sandmo, 1971; Andreoni et al. 1998; Alm and Torgler, 2006; 2011).

However, under close observation, the researchers realize that the taxpayers and the tax authority should operate under a better relational perspective based on the combined understanding of the agency and social contract theories.

This perspective called on the 'relational agency model'. In examining how taxpayers are treated, the concept of trust breeds trust as put across by Feld and Frey (2007) became relevant. This is because the taxpayer, under this 'relational agency model' is in a contractual relationship with the government, on whose mandate the tax authority operates, to collect taxes from the taxpayers, and use such taxes to provide social infrastructure and services for the benefits of all members of the society (both taxpayers and non-taxpayers) within the context of the social contract theory (Awodun, 2016).

The above, therefore, justifies the need to revisit the relationship between these players in the tax system and perhaps come up with an alternative perspective that could exert better result than what we have today. The quest of the study is to redefine the relationship between the taxpayers and the tax authorities in the country with the sole purpose of eliciting a more acceptable outcome to all parties' concern, hence the development and application of the 'relational agency model'.

### **Background to the taxpayer/tax administrator relationship**

Searching the literature on taxpayer and tax administrator relationship in Nigeria, the very first time attention was focused on taxpayers in the history of the Nigerian tax system was found in Paragraph 4.11 page 44 of the Report of the Task Force on Tax Administration (1979) where the following recommendation was made:

*More publicity should be given to taxpayers about what they are expected to do to satisfy their tax obligations. Similarly, government should mount special publicity programmes aimed to enlighten taxpayers on the use of tax revenue.*

The report brought to bear for the first time, the need to sensitize the taxpayers about their civic responsibilities in the form of tax education and enlightenment. In addition, it encouraged government on accountability and transparency on the application of the funds collected as taxes from the taxpayers. The purpose of these two recommendations is obviously to ensure improvement in the level of taxpayer compliance with ultimate increase in taxes collected.

From a critical examination of who a taxpayer is, there are some characteristics that can be deduce which will



determine whether an individual is qualified to be regarded as a taxpayer or not. First, is the residency clause that requires the taxpayer to be resident within the society in question? This condition is important and has been discussed in several literatures. The second is adulthood which means that the taxpayer must have attained the tax paying age as contained in the tax laws. The third is that the taxpayer must have at least a source of income (above ₦30,000 per month for individuals in Nigeria) from which the tax due could be deducted, and (annual income in excess of ₦25 million for companies, in Nigeria).

All of the above are as contained in the tax laws of the society in question, as collection of taxes is based on statute. The power or authority to collect taxes is rested on the government, who in turn establishes an agency to exercise this authority or power on its behalf as stipulated in the tax laws that the government may legislate from time to time. Based on the above, the taxes collected are not arbitrary as they are well spelt out, and the basis of introduction of such taxes also, are well considered and communicated.

The agency established by the government to collect the taxes, as stipulated by law, from the taxpayers, normally regarded as the tax authority, is the tax administration arm of government, and the operators engaged by the agency are the tax administrators. Furthermore, Chapter 3, Paragraph 3.2(v) of the National Tax Policy (2012) also states that a taxpayer is entitled to self-representation or representation by any agent of choice, provided the agent, acting for financial reward, shall be an accredited tax practitioner.

It is, therefore, common for the agency of government (tax authority) and the tax administrators, engaged by the government agency, to see themselves as empowered, by the law establishing them, to enforce compliance to the tax laws (National Tax Policy, 2017). Trust in authorities and power to enforce tax compliance (Wahl et al., 2010) is expressed in why people obey the law (Tyler, 2006) and the detrimental nature of the inconsistencies in punishment procedures to compliance (Van Prooijen et al., 2008). The tax administrators go about the discharge of their responsibilities of assessing, collecting, accounting for taxes as backed up by the laws and conduct their affairs of tax administration from this point of view.

Income tax evasion is a global phenomenon (Allingham and Sandmo, 1971) whose justification and the administrator's tax compliance struggle are based on ethics, morality, power and law under the social contract theory perspective (Alm and Torgler, 2011; El-Haddad, 2020). Where necessary, the administrators may enforce tax collection from deviant taxpayers using the instrumentality of law. It is not strange, therefore, to observe compliance being achieved mostly through enforcement by the tax agency (Muehlbacher and Kirchler, 2010). This is drawn from the conventional

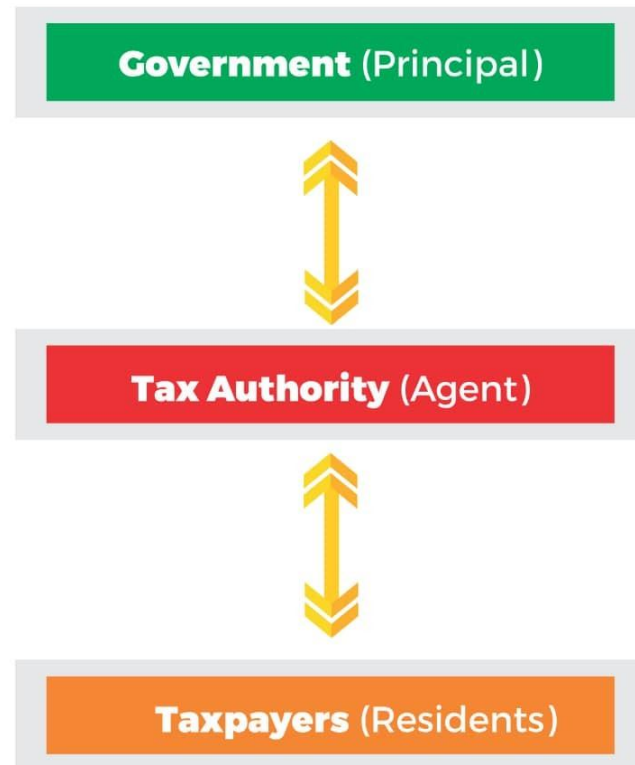
perception that the tax administrators see themselves as an agency of government, empowered by law to bring about the enforced collection of taxes from the residents (individuals) and companies operating in the society under its coverage (Alm and Torgler, 2006; Blackwell, 2007; Somorin, 2019).

The basis of the above position is that the taxpayer is seen as that individual or organization whose income is the subject of tax deduction, will rather do everything to evade paying taxes so as to keep all his income. With this perception, the agency empowered by law, therefore, believes that compliance could be attained through enforcement, if the taxes due to government are to be extracted appropriately from the taxpayer. The tax agency, based on this perception, assumes the position of a government agency from the conventional point of view, playing the traditional role of enforcing the collection of taxes from the taxpayers.

### **Research problem, hypothesis and model**

When the fact that the concept of tax, ordinarily is considered based on the social contract theory (El-Haddad, 2020; Healy and Murphy, 2017) where the residents only surrender their sovereignty to the state to administer their collective affairs in return for the payment of taxes, then the agency relationship of the tax authority would need a revisit, and the relationship between the taxpayer and the tax administrator, a redefinition. This is because rather than the tax agency, whose activities are carried out through the tax administrator, being seen as the agent of the state, this study proposes that a different consideration is given to that relationship based on the concept of the agency theory without undermining the convention.

This approach, as proposed, would see the tax agency, from the 'relational agency model' perspective, as an agency of the taxpayer instead of the traditional perspective of being the agency of government. This is because the state is merely a custodian of the collective sovereignty of the residents of the state which is voluntarily surrendered to it. The relational theory (Haslam and Fiske, 1999; Cook and Dimitrov, 2017; Feldmann and Mazepus, 2018) further supports the above position. The people are the constituent of any state, and it is because they have given up their individual sovereignty, in the first instance, that is why the state could entrust the tax authority with the responsibility of tax collection. Hence, the tax authority is better seen as the agency of the people than the agency of the state. The problem of this study is, therefore, a redefinition of the relationship between the taxpayer and the tax administrator by subjecting it to the test of the triangular 'relational agency model' within the context of agency theory, social contract theory and relational model theory. This is being examined from the perspective of the



## Traditional Command Model

**Figure 1.** Traditional (command) model.  
Source: Authors.

economic psychology of tax behavior (Kirchler, 2007). By so doing, it is expected that the administrator understands the redefinition of their relationship, and the realignment of the tax authority's operational activities in compliance to this perspective, would ultimately bring about optimum tax collection.

The traditional command approach is a top to bottom model that depicts the government as the principal in the taxpayer relationship management, and the tax authority as the agent. The taxpayer is described to be at the bottom of the ladder and expected to comply strictly with the commands of the government through the tax authority as depicted in Figure 1. Under this approach not much concern and attention is given to the taxpayer beyond the expectation to comply with the payment of taxes through the tax authority.

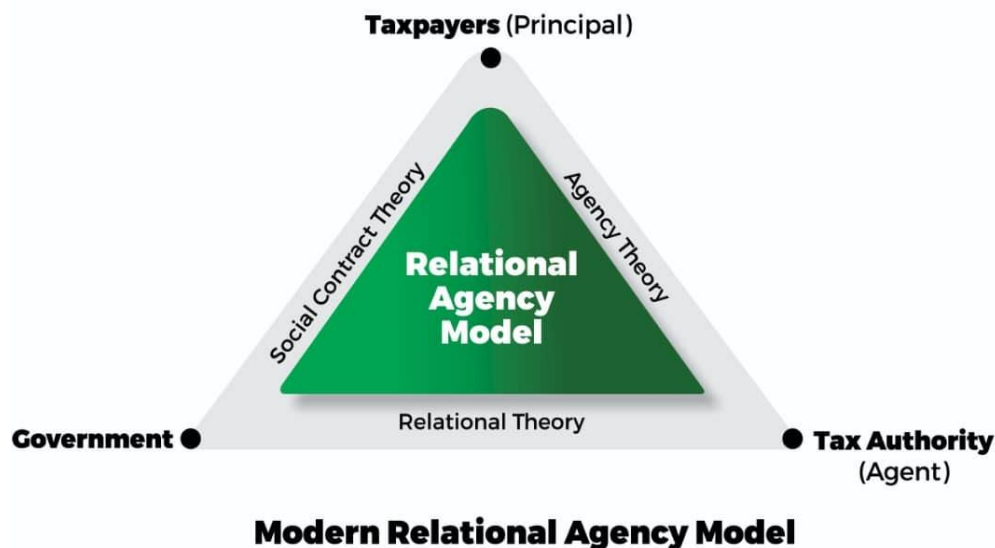
However, the relational agency model approach is a triangular arrangement that puts the taxpayers as the principal under the agency theory, while the tax authority is the agent. The taxpayers and government come into a relationship under the social contract theory. The tax authority and the taxpayers are also within the relational theory expected to have cordial relationship within the

taxpayer relationship management process. The situation as described above forms the basis of what is depicted appropriately in Figure 2 as the relational agency model, the application of which is the basis of this study.

We therefore hypothesize that the taxpayers are more responsive and compliant where and when they are seen and treated by the tax administrators as their principal, as express by the relational agency model than where and when they are seen as subservient residents in the traditional (command) model.

### **Conceptualizing the 'relational agency model' within the context of the agency, relational and social contract theories**

The agency theory models relationship between a principal and an agent, considers the optimal contract form for the ubiquitous relationship where a principal, delegates work to an agent (Eisenhardt, 1989; Awodun, 2018b). Agency theory is built on the notion that separation of ownership and control potentially leads to self-interested behaviors by the agent (Kirchler, 2007;.



**Figure 2.** Relational agency model.  
Source: Authors

Kirchler et al., 2008). Testing the ‘slippery slope’ framework in Austria, Hungary, Romania and Russia, Kirchler and Wahl, (2010) and Kogler et al. (2013) revealed that trust and power are the determinants of tax compliance

In agency theory, both the principal (that is, shareholders) and the agent (that is, managers) are depicted as utility maximizers (Jensen and Meckling, 1976; Fama and Jensen 1983). The agent’s utility function includes power, security, status, and wealth while the principal’s utility function is to maximize the market value of their shares or interests or stakes as the case may be (Awodun, 2018b). The taxpayer’s tax compliance, coercion and legitimate power of tax authorities are as a result of diminishing trust in tax authorities (Hofmann et al., 2014).

Agency theory has witnessed such rigorous research with contributions by researchers such as Berle and Means (1932), Fama and Jensen (1983); and Jensen and Meckling (1976) directed at a particular type of organizing problem, called agency problem (Eisenhardt, 1989). In agency theory literature, the primary agency problems, popularly considered are; moral hazard (MH) and adverse selection (AS) (Eisenhardt, 1989). Moral hazard is a problem resulting from the situation where the principal cannot observe or monitor the agent’s actions. Arrow (1985:37) says that the problem here arises when “the agent’s action is not directly observable by the principal.”

Averse selection (AS), on the other hand, is a problem resulting from the situation where the principal cannot assess whether the agent’s actions best serve the principal’s interests. Arrow (1985) opined that the problem, in this situation, arises when “the principal may

be able to observe the action itself, but does not know whether it is the most appropriate one.” In other words, the principal cannot ascertain whether the agent is protecting his interest or not, despite being able to observe the activities of the agent.

According to Mitnick (1994), the critical difference between moral hazard and adverse selection is that the former principal cannot observe the agent’s actions, giving the agent the latitude to take actions that have undesirable consequences for the principal. While in the latter, the principal may well observe the agent’s actions, but the principal cannot tell whether the agent’s actions are optimal with respect to the principal’s interests. Thus, it is quite conceivable that agency problems could be aggravated if it becomes more difficult for the principal to observe and appraise what the agent is actually doing and has done for the principal.

Agency theory is considered appropriate to situations that have a principal-agent structure. In specific terms, it is popularly related to the headquarters-foreign subsidiary relationship in multinational enterprises where it is applied to the situation of principal agent structure, as the headquarters, delegates’ decision-making authorities and responsibilities to foreign subsidiaries (Gupta and Govindarajan, 1991; Nohria and Ghoshal, 1994; Roth and O’Donnell, 1996; Bonazzi and Islam, 2007). Though the situation under consideration is not similar, however, the extent of difficulty to which the principal (that is, the headquarters) faces in the observation and verification process could be dependent upon the strategic roles of the agent (that is, foreign subsidiaries), and is relevant in this case. Foreign subsidiaries will cast different levels of agency problems to the headquarters depending on the strategic role they are undertaking – that is, *specialized*

*contributors, local implementers, and world mandates* (Kim et al., 2005) just as the taxpayers constitute different problems to the tax authority whether as individual or corporate taxpayer.

The agency theory substantiates most of these arguments on efficient governance. Considering that the corporation is a bundle of contracts, the contract between managers and shareholders is not different from the contracts between the other agents involved in the value-adding activities (employees, customers, suppliers). Investors as owners of stock in the stock market capitalism delegate decision-making powers to agents (managers and independent directors). The taxpayers, in the same manner should be seen as the owners of the tax authority, particularly from the perspective of the social contract theory, in support of the above agency theory position.

Ultimately, agency costs rise not only because of opportunistic behavior by managers, but also from the monitoring and control mechanisms put in place by stockholders (Awodun, 2018b). The entire corporate governance system put in place to protect investors' interest, represent an institutionalization of monitoring and control procedures, raising costs, and diminishing allocative efficiency. Hill and Jones (1992) summarize three sources of agency costs from the perspective of agency theory: (a) principal's monitoring expenditure; (b) agents' bonding expenditure; and (c) residual loss.

What can be deduced from all of the above reviews are that the taxpayer is, indeed, the principal in our consideration of applying the 'relational agency model' to tax administration, while the tax administrator is the agent. This position does not discard the already established agency relationship between the government and the tax authority which is another line of relationship. It also does not eliminate the agency relationship between the tax authority and the employees (tax administrators). While the first is the new consideration the researchers are focusing attention on in this research, the other two relationships have been well established in several other research. Therefore, the outcomes of the application of the 'relational agency model' were presented to the relationship between the taxpayer and the tax administrator in an attempt to redefine this relationship, as indicated in the objective of this study.

## RESEARCH METHOD

The methodology of research adopted by this study is participant observation, where the main researcher was involved in the operational activities of a State Internal Revenue Service in the North Central Region of Nigeria for 48 months between 2015 and 2019. Putting across his theoretical observation of the perception of tax administrators and taxpayer relationship, as against the conventional perception, prior to his engagement in the organization, he set out to experiment the new theoretical stand with the commencement of activities of the Agency in October, 2015.

The various top management staff were the first to be sensitized on the need for this experimentation with clearly defined strategic objectives and values for the Agency built around this new paradigm. With the resolve of the top-level management to travel this new road together, the middle level management was brought on board, a month later. The low-level management was the last to be introduced into this paradigm change, and that was achieved through an intensive training that commenced, three months after the commencement of activities. Thus, the experimentation proper started from the first month of 2016.

With the core values of service, honesty, integrity, responsibility and trust, acronym 'SHIRT', the entire 147 staff members, that commenced full operations in January 2016, were appropriately sensitized on the 'relational agency model' perspective of the tax authority as the agent of the taxpayer based on application of the agency theory to the taxpayer relationship management. The Agency created a taxpayer centric perspective, and in 48 months of operations, applied this new paradigm in its taxpayer relationship management.

### Applying the 'relational agency model' in redefining the relationship between the tax administrator and the taxpayer

Arising from the description of the 'relational agency model' above and from the understanding of rethinking the social contract theory (Bussolo et al., 2018; Bussolo et al., 2019), it can be safely said that the taxpayer in every society is the principal, in this relationship, and the tax authority is the agent. Though, representing the state in the administration of taxes in the society, the tax authority and the state are one, and on the same side of the divide in this relationship, while the taxpayer is on the other side.

As we have established from the social contract theory earlier in Bruner (2015) and El-Haddad (2020), the taxpayers are the collective owners of the resources of the state, but have only appointed the government to manage these resources on their behalf, thus, surrendering their individual rights to the state. The state, in return, had thought it wise to subject every resident to paying a part of their earned income as taxes for them to be able to carry out the administration of the collective resources of the state on behalf of the residents (taxpayers), and for redistribution of income and wealth in the society.

One of the problems encountered, and arising from the application of the 'relational agency model' to the taxpayer and tax administrator relationship, called taxpayer relationship management, is the 'moral hazard' problem which is as a result of the fact that the principal, in this case, the taxpayers, cannot observe or monitor the agent (tax authority)'s actions. As rightly observed by Arrow (1985), this problem arises because "the agent's action is not directly observable by the principal." This situation is the situation that most of the tax authorities had exhibited because they have not rightly seen the taxpayer as their principal under the command (traditional) perspective, and as such do not see themselves as accountable to them. They had rather, on the contrary, believed that they are accountable to the government only, failing to realize that the government are merely representing the taxpayers in the administration of the collective resources of the state.

To address this problem, in the course of experimentation, the researchers subscribed to a reporting mechanism that mandated the agency to report publicly, through various medium, the activities, operations and performance of the tax authorities on a monthly basis through the local media, and a quarterly media parley. By so doing, it became more accountable and responsible to the taxpayers, as our principal, based on the 'relational agency model' perspective adopted in taxpayer relationship management.

Another problem arising from the application of the 'relational agency model' to the taxpayer and tax authority relationship is

averse selection'. This is a problem that results from the situation where the principal (in this case, the taxpayer) cannot assess whether the agent's actions best serve his interests. Arrow (1985) also noted that this problem arises as a result of the principal, being able to observe the action of the tax authority, but does not know whether these actions are the most appropriate, and in their best interest or not.

To address this observed problem, an infrastructure fund mechanism was also fashioned out with the government where a substantial portion of the taxes collected monthly is legislated to be accrued in an infrastructure fund account and utilized specifically for social infrastructure projects that could be considered as 'common good' for the benefit of the society. This infrastructure funding mechanism commenced in October 2016, exactly a year after the commencement of operations of the experimentation.

While in the 'moral hazard' problem, the taxpayer, as the principal, cannot observe the agent's actions, thus, allowing the agent to take actions that have undesirable consequences for the principal, in the 'averse selection' problem, however, the taxpayer may well be able to observe the agent's actions, but cannot tell whether the agent's actions are optimal with respect to his interest or not.

Thus, it is quite conceivable that agency problems could be aggravated if it becomes more difficult for the principal to observe and appraise what the agent is actually doing or has done for the principal. This is the situation that most of tax authorities face with the taxpayers who are growing more enlightened and more educated. Unlike when the taxpayers were very uneducated and cannot express their rights, the situation today is that the taxpayers are now better informed, with the advent of technology, and therefore, subtly demanding for their rights as the principal in their relationship with the tax authority.

The outcome of this experimentation over a period of 48 months, in the case of the State IRS observed revealed that the earlier the tax authorities begin to understand the relationship between them and the taxpayers and relate with the taxpayers from this point of understanding, the better will be their performances. In other words, the taxpayers should be given more and better attention as tax authorities must be more taxpayer centric than they have ever been in their taxpayer relationship management. This is what the relational agency model is all about.

## FINDINGS AND DISCUSSION

The findings show that the traditional (command) approach to tax administration cannot be sustained in this modern day for so many reasons, and this has form the basis of our call for a redefinition of relationships, particularly that between the taxpayer and the tax authorities. This paper has subjected that relationship to the agency theory to redefine the relationship such that the taxpayer is now seen as the principal and the tax authority as the agent. To further understand this position, the tripod of the agency, relational and social contract theories came handy. This redefined triangular 'relational agency model' approach, when subjected to test at the tax authority of our choice, was able to change the dynamics of tax administration positively, as it was given due consideration by the Agency.

What we observe in the course of the study is that a redefinition of the relationship resulted in giving more attention to the taxpayers who are the customers of the

tax agency, on one hand, and the owners of the tax agency on the other hand. The moment, the tax authority, resolve to begin to see the taxpayers from this perspective, consideration for better service and responsible delivery of such service became of topmost priority to the tax administrators. The tax authority, thus, began to think in terms of the taxpayer's convenience in the course of rendering their service, with the provision of convenient and more efficient tax administration mechanisms, and this resulted in optimal performance.

The ultimate purpose of a tax authority is the growth of taxes collected. In our experimentation of measuring the paradigm change against the internal revenue performance, the researchers observe that the internally generated revenue of the State IRS grew from N7.2 billion in 2015 to N17.4 billion in 2016, N19.6 billion in 2017, N23.1 billion in 2018 and N30.1 billion in 2019 when the experimentation was concluded. The significance of the change in the taxpayer relationship management with the application of the 'relational agency model' was felt at the bottom line of the Agency.

Also of significance is the aspect of accountability and transparency which was noted, as not only required for the purpose of satisfying the taxpayers as the principal, but also as a means of eliciting taxpayer's confidence with the possibility of bringing about more voluntary compliance. This also boosted the effectiveness of the tax authority through increase in the level of compliance, as registered taxpayers grew from 11,217 in 2015 to 52,411 in 2016, 61,233 in 2017, 100,972 in 2018 and 155, 298 in 2019. There is also the aspect of taxpayers' engagement that complements the responsibility of the tax authority in delivering openness to the principal (the taxpayers) in the tax collection relationship.

In conclusion, the 'relational agency model' suggests that corporate governance can reduce agency costs, which in turn leads to improved firm performance. The problem inherent in the failure to do this is known as the principal-agent problem between two parties, the principal and the agent. As concerning corporate governance in multinational enterprises, like in the domestic firms, it involves separation of ownership and control, and this, as far as the open financial system is concern, can resolve the agency problem between management and shareholders. Openness in rendering account of collection of taxes such that all taxpayers can have access to amounts collected is not negotiable in this redefine relationship between the taxpayer and the tax authority.

Finally, is the process improvement that was embarked upon through international standardization, and adoption of technology in the operations of the tax authorities to make service delivery more efficient and effective. This, though a herculean task, because of the resistance to change of the people, was combined with the training and retraining of the tax administrators to re-orientate them appropriately in this new direction that the world of tax

administration is moving towards. It made the taxpayer relationship management, under the new model, effective. Based on the above outcomes, over the period of experimentation, we came to that conclusion that the taxpayer should be seen as the principal in the taxpayer and tax authority relationship as professed by the 'relational agency model'.

## Conclusion

The tax administrators of the 21st century will be able to make significant difference in their performances, if and when there is a very clear understanding of the basis of their relationship with the taxpayers, as redefined in this paper. The taxpayer, who is seen as the target of fulfillment of the responsibilities of the tax authority, is more importantly the principal in the relationship with the tax authority, and what this means is that they have far more expectations from the tax administrators under the 'relational agency model' approach than under the command (traditional) approach.

While the taxpayers are expected to fulfill their obligations of tax payment, the tax administrators have relegated to the background the very important responsibilities expected by the taxpayers also from them. Fulfilling these contractual responsibilities of accountability, service, and transparency, with understanding, will go a long way to make the taxpayers commit to voluntary tax payments than ever, and raise the bar of tax compliance. To make this possible, the tax authorities should begin to think of the taxpayers as their customers, and their shareholders, who will require from them service and accountability, for them to remain relevant in their taxpayer service delivery.

The above, therefore, affirms the significance of our 'relational agency model' as a more effective and efficient approach to taxpayer relationship management than the traditional (command) approach.

## FURTHER RESEARCH

Following the observed outcomes of this study, and the significance of the performance, it is hereby suggested that the results of performance could be further subjected to a quantitative analytical methodology that would recognize all other factors beyond this 'relational agency model' as responsible for the positive results. Some of these factors are already captured and discussed in this study while some others have been left out. However, a quantitative study that would capture all determinants of the positive results of the experimental period will capture the various contributions of all the factors, and provide further insight into the application of this 'relational agency model' to the relationship between the taxpayer and the tax administrator.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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*Full Length Research Paper*

# **Trend analysis of the immediate post-adoption effects of IFRS 9: An emerging market evidence**

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Received 16 March, 2022; Accepted 11 August, 2022

**IFRS 9 is a global standard whose impact is expected to vary depending on banks' credit risk approach, size, and country of incorporation. Therefore, it is imperative to study the implementation effects of IFRS 9 in all regions in which IFRS 9 has been implemented. This paper examines the first-time post-adoption effects of IFRS 9 in the Ghanaian banking sector and addresses the gap in empirical academic literature from an African context regarding the implementation effects of IFRS 9. The study found that regulatory capital was adversely affected as a result of an increase in impairment charge at the transition to IFRS 9 on 1st January, 2018. Loan loss provision increased due to timely recognition of expected credit losses. Despite the peculiar context of this study, the results are generally consistent with theoretical and empirical literature from the European region. The findings suggest that a proper regulatory and supervisory framework, as well as consistent application of IFRS 9 will be essential to leverage optimal benefit from the standard.**

**Key words:** IFRS 9, expected credit loss, regulatory capital, impairment charge, banks.

## **INTRODUCTION**

The 2007-2008 financial crisis, due to its severity and transmission mechanism, revealed the intricate and interwoven connections among financial institutions at the global level. Though a lot of factors were ascribed to the crisis, central to it was the drastic increase in financial innovation and sophisticated financial instruments such as mortgage-backed securities (MBS) without adequate supervision and regulation. As a sequel to this, the attention of supervisory and regulatory bodies was drawn to the need to tighten supervision and regulations in the financial sector. The response of the International Accounting Standards Board (2009) was the introduction of the International Financial Reporting Standard 9 – IFRS 9 (Financial Instruments). The effective date of this

standard was 1st January 2018. The objective of this standard is to address the significant adverse effect of untimely recognition of credit loss on the financial positions of banks as revealed by the financial crisis. The standard seeks to create a more stable and formidable financial system since financial instruments account for a significant portion of banks' financial position. The recognition by regulators that accounting rules can fundamentally impact bank stability is reflected in proposals issued by the Financial Stability Forum (2009) and the US Treasury (2009) strongly recommending that both the Financial Accounting Standard Board (FASB) and IASB re-evaluate fair value accounting, accounting for loan losses, and hedge accounting among other

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issues.

Academic literature found that some banks exploited accounting discretion during the 2007-2008 financial crisis (Huizinga and Laeven, 2012). Huizinga and Laeven (2012) posited that banks with higher levels of private-label mortgage-backed securities (MBS) on their balance sheets are more likely to overstate the carrying value of their assets by failing to take timely write-downs, delay loan loss provisions and reclassify available-for-sale MBS as held-to-maturity when the fair value of these MBS was less than their amortized cost. Bhat and Ryan (2015) found that banks that rely more on a statistical analysis of loan performance are timelier in recognizing losses in the pre-crisis boom period and late in the financial crisis, but less timely in the financial crisis compared to those that use stress tests. From the above, it is evident the incurred loss model under the International Accounting Standard (IAS) 39 was more reactive and therefore untimely. De Haan and Van Oordt (2018) succinctly stated previous model's loan losses provisions (LLP) are now considered to be "too little, too late".

In light of this, International Financial Reporting Standard 9 (IFRS 9), which became effective on 1st January, 2018 introduced new accounting rules for dealing with financial assets, financial liabilities, impairment methodology, fair value options, and hedge accounting. This standard integrates a proactive and forward-looking approach in the estimation and recognition of loan loss provision. IFRS compliant firms are obliged to adopt the Expected Credit Loss (ECL) model under IFRS 9 as a replacement for the Incurred Loan Loss (ILL) model previously used under IAS 39. Based on the robust requirements of this standard, it is very glaring that its impact on enhancing the financial soundness and stability of the banking sector cannot be undermined. The application of the new standard has been obligatory since 1st January 2018 and is expected to have a major impact on the banks' balance sheets (Bloomberg, 2018).

Though there is diverse literature on IFRS adoption in general, specific literature on IFRS 9 post-adoption effect is very nascent and scarce as the standard became effective barely a few years ago. The few existing literature on the post-adoption effects of IFRS 9 has mostly centered on European Banks. The current strand of literature on this theme is mostly theoretical literature with few empirical studies. Publications by the "big four" audit firms such as PwC, Deloitte, KPMG, and Ernst and Young (EY) all shed light on the expected implications of the standard with less being shed on its actual impact. Ntaikou et al. (2018) focused on the expected impact of IFRS 9 on the Greek banking system. Deloitte in its July 2019 publication shed light on the initial impacts on 6 major UK banks. European Banking Institute (Loew et al., 2019) also shed light on the first-time application effects on European Banks' balance sheets. IFRS 9 is a global standard whose application is not limited to Europe but

also in other jurisdictions such as Asia, Africa, etc. Deloitte (2016b) and EY (2018) argued that the impact of IFRS 9 on banks is expected to be influenced by country of incorporation and size. It is therefore imperative to study the implementation effects of IFRS 9 in all regions for which IFRS 9 has been implemented or adopted. In contrast, empirical academic studies on the post-implementation effect of this standard on African banks are very limited or barely available.

The prime contribution of this study is to primarily address the gap in the empirical literature on the post-implementation effects of IFRS 9 from an African context by placing a central focus on the Ghanaian banking sector. To the best of our knowledge, this study is novel to Ghanaian literature on this theme. Based on trend analysis of the published audited financial statements of the banks, it was found that regulatory capital was adversely affected as a result of an increase in impairment charge at the transition to IFRS 9 on 1st January 2018. Loan loss provision increased significantly. In terms of classification and measurement, most financial assets remained in their original classification category under IAS 39 with few changes as amortized cost still accounts for a significant proportion of the entire portfolio of financial assets held by the banks. The result of the study bridges the gap between research and policy as it emphasizes the need for banks to strengthen their risk management and credit methodology to reduce their risk exposure from non-performing loans. Also, due to the high level of managerial discretion involved in the estimation of Expected Credit Losses (ECLs), the regulatory and supervisory body (Bank of Ghana) is admonished to strengthen its surveillance over the risk management practices of the banks to ensure strict adherence to all regulatory directives. This will reduce the buildup of excessive risk in the banking system and also ensure consistent application of the standard.

The rest of the study is structured as follows. The next section presents a review of the theoretical and empirical literature on IFRS 9. This is followed by the research design and methodology, discussion of results and conclusion.

## LITERATURE REVIEW

### The transition from IAS 39 to IFRS 9

Accounting to financial instruments under IAS 39 became a controversial subject in the industry as well as academia as the standard was viewed as too complicated. As a result, reforming financial instruments accounting was determined a high-priority project resulting from the Norwalk Agreement of 2002 (Deloitte, 2019b). The financial crisis of 2008 necessitated the implementation of IFRS 9, as several parties including (G20 and Financial Crisis Advisory Group) expressed

concerns about IAS 39's inherent flaws (IASB, 2014). The "too little, too late" approach in terms of provisions was extensively criticized, sparking the need for a new standard requiring more forward-looking information in the estimation of credit losses (ECB 2017). In response to this, the IASB in 2008, commenced a project to develop a solution. The final version of IFRS 9 Financial Instruments was published in July 2014 (IASB, 2014) and replaced the International Accounting Standards (IAS) 39 effective on the fiscal year commencing 1st January 2018. The key differences between these standards stem from the classification and measurement criteria of the financial instruments, measurement, and recognition of expected credit losses and in hedge accounting. In the context of IFRS 9, changes to financial instruments accounting were introduced in three phases: (1) Classification and measurement, (2) impairment, and (3) hedge accounting (EY 2017).

## Theoretical review

### *Publication by regulatory bodies*

European regulators have been at the forefront of research to ascertain the key impacts and challenges associated with the implementation of IFRS 9. Key among these institutions is the European Banking Authority (EBA) which released its initial impact assessment in 2016. A second impact assessment was issued in 2017. EBA (2017) opined that the two assessments showed consistent results. The third impact assessment in 2018 corroborated previous findings despite a small shift in estimated impact severity (EBA 2018).

One of the major findings of the EBA's studies is the reported negative effect on Common Equity Tier 1 (CET1) ratios. Majority of the fifty European banks surveyed expected a decrease of about 47 basis points (bps) whilst 25% of the surveyed banks expected almost a decrease of 75bps. The EBA posited that the impact seemed to be smaller for firms applying the internal rating-based approach (IRBA) for credit risk as against the standardized approach (SA). EBA (2018) indicated that the impact might have been because, in contrast to SA banks, regulatory expected losses of IRBA banks had already been reflected in CET1. As a way of mitigating the impact of IFRS 9 on regulatory capital, the European authorities introduced the 5-year transitional arrangement to enable banks to absorb the initial impact over this period. Within this transitional arrangement, banks that experience an adverse effect on their common equity following the IFRS 9 introduction can add back the increase in loss allowance to the CET1 ratio. The amount added back is expected to decrease over time until everything is depleted after a maximum of 5 years (European Parliament 2017).

The EBA studies further revealed the inflating impact on provisions of about 13%, with 25% of the banks expecting an increase of 18%. Again, the findings suggested that the effect is less severe for smaller banks using the SA but higher for banks using the IRBA. About 70% of the respondent expected rising volatility in profit and loss with an insignificant impact expected in terms of classification and measurement.

### *Publication by auditors and consultancies*

The "Big 4" audit firms remain a major force to reckon with regarding the interpretation of financial reporting standards. They have published reliable accounting literature on past regulations and accounting standards and can be regarded as a major source for the interpretation of the original guidelines (Bloomberg 2018). The implementation of new systems and processes because of IFRS 9's new requirements renders the implementation of IFRS 9 an uphill task (PwC, 2017a). Audit firms and Consultancies expect significant impacts on the balance sheets due to different classification and re-measurement of financial instruments and new impairment rules for financial securities (Gruber, Engelbrechtsmüller 2016). The review under this section focuses on the classification and measurement effect, the overall impact on equity, and the impairment effect.

**Classification and measurement effect:** A greater percentage of assets are expected to remain in their current measurement category (PwC, 2017a; PwC, 2017b). In effect, most assets previously designated as loans and receivables or held-to-maturity, thus measured at amortized cost will still be measured at amortized cost and most assets previously measured through profit or loss will be measured through profit or loss (PwC, 2017a; PwC, 2017b).

**Impact on equity:** The impact on equity is projected to vary depending on the banks' credit risk approach, country of incorporation, and size (Deloitte 2016, EY 2018). Specifically, SA banks are expected to suffer capital reduction twice as much as IRBA banks (Deloitte 2016). It is expected that the rise in impairment on the transition to IFRS 9 on 1st January 2018 will affect the net profit of the banks. Undistributed profit for the year is immediately reflected in retained earnings. Retained earnings form part of the Common Equity Tier 1 (CET1) capital; the highest core capital item of the banks. Thus, theoretical literature expects a decrease in the CET1 capital following the initial transition to IFRS 9. Also, the effect on equity is expected to differ considerably among the banks. Some banks are projected to witness a positive effect of re-classification which is expected to balance out the increase in impairment provisions. Banks that fall within this category are thus expected to witness a small reduction in equity.

**Impairment effect:** IFRS 9 implementation is invariably expected to have a far-reaching impact on impairment or loan loss provisions. However, the severity of the impact is dependent on whether the bank is using IRBA and SA in their credit assessment. The reason for the expected increase in loan loss provisions for SA banks and the shortfall of the expected loss compared to the IFRS 9 expected loss of IRBA banks is assumed to be mainly caused by the lifetime expected losses for assets allocated to stage 2 as well as "downturn factors in regulatory measures" (Deloitte, 2014).

### Academic literature

From academic literature, a decrease in the CET1 ratio is expected due to the change from an incurred to an expected credit loss model (Novotny-Farkas, 2016; Löw and Kluger, 2018). According to Löw and Kluger (2018), a greater effect is expected for SA banks as opposed to IRBA banks due to possible positive effects of the valuation allowance comparison of capital requirement regulation (CRR). In the first year of implementation, the overall first-time implementation effects on European banks are expected to be low to moderate given the 5-year transitional arrangement instituted by the European supervisory authorities (Löw and Kluger, 2018). Besides the reduction of the overstatement of regulatory capital, IFRS 9 is expected to increase its volatility (Novotny-Farkas, 2016).

In terms of classification and measurement effect, Bischof and Daske (2016) argued that IAS 39 loans and receivables, as well as held-to-maturity assets, will mostly satisfy the requirements and continue to be accounted for at amortized cost. The use of the fair value option will remain quite limited (Bischof and Daske, 2016). Similarly, they posited that IAS 39 fair value assets will mainly continue to be accounted for at fair value (Bischof and Daske, 2016).

Thus, it is expected that the implementation of IFRS 9 will only increase the average level of fair value usage modestly and amortized cost will remain the largest category (Bischof and Daske, 2016). In effect, the balance sheet structure in terms of the composition of amortized cost (AC), fair value through profit or loss (FVPL), fair value option (FVO), and fair value through other comprehensive income (FVOCI) is expected to be rather small (Weber, 2018).

According to Krüger et al. (2018), IFRS 9 is envisaged to result in a more adequate and timely recognition of economic values in terms of impairment effects. Some researchers argued that overall earlier and larger loan loss reserves are to be expected due to the forward-looking approach (Novotny-Farkas, 2015).

### Empirical review

The current strand of the empirical literature on the first-

time implementation impacts of IFRS 9 has mostly been published by regulators and the "big 4" audit firms. The empirical academic literature is scarce on the above subject. The focus of this section is to highlight some empirical findings on IFRS 9 implementation effects mostly from the regulatory bodies and the audit firms. It is structured on overall balance sheet effects, equity effects, classification, and measurement effects as well as impairment effects.

**Effects on balance sheet:** The European Banking Institute (Loew et al., 2019) identified post-implementation effects on significant balance sheet line items. The findings revealed a significant increase in total commercial loans than consumer loans. However, this was attributable to a change in the overall economic environment rather than an IFRS 9 effect. Other assets increased significantly in relative terms due to the re-classification of financial assets (e.g. contract assets) per IFRS 9. The non-performing loans (NPLs) increased significantly in 2018, having decreased in prior years.

**Effects on equity:** Empirical studies conducted by the European Banking Institute (Loew et al., 2019) revealed that the majority of European banks experienced a reduction in equity following the implementation of IFRS 9. CET1 capital introduced under BASEL III includes common shares, share surplus, retained earnings, other comprehensive income, and minority interest. It, therefore, stands to reason that, impairment provisions will subsequently affect regulatory capital through the impact on the income statement. Undistributed net profit for the year is transferred to retained earnings which is a key component of CET1 capital. Categorically, they will be immediately reflected in the CET1 ratio (BIS 2018). The findings further suggest that the impact severity is mostly in line with the expectations described in the theoretical literature.

Another study by Deloitte on six major UK banks supported the above empirical findings. Although the banks experienced increased impairment provisions at the transition to IFRS 9 on 1st January 2018, other offsetting factors such as positive classification and measurement effects on accounting reserve and IFRS 9 transitional arrangements among others mitigated the impact (Deloitte, 2019a). Again, it is further observed that the impact of IFRS 9 on regulatory capital is dependent on whether exposures are measured under SA or IRB modeling approach. This further affirms the theoretical literature concerning the impact of the standard on regulatory capital. A similar study conducted by Deloitte (2019b) on five major Nigerian Banks on the post-implementation impact of IFRS 9 also supported the above studies.

**Effects on classification and measurement:** The actual classification effects are closely in line with the expectations of theoretical literature. The majority of

financial assets such as loans and receivables and held-to-maturity remain in their original category as amortized cost, as they do not meet the cash flow criterion and are held in a business model “held to collect” contractual cash flows (Loew et al., 2019).

Loans and receivables make up the biggest part of the new carrying value of financial assets at amortized costs. Financial instruments measured at amortized cost account for the largest portion of the bank’s financial asset portfolio.

Portfolios classified as “mixed” (where assets are partly held to collect contractual payments and partly sold but with a significantly lower frequency than in trading), such as promissory note portfolios or asset-backed securities, are reclassified to fair value through other comprehensive income (FVOCI).

The results further indicated that financial assets measured at fair value through profit or loss (FVPL) accounted for about 21% of the overall portfolio. The increase reflects the result of failed SPPI tests reclassified from loans and receivables and available for sale financial assets. Furthermore, financial assets previously designated at FVPL under IAS 39 were reclassified based on their SPPI test and business model designation (Loew et al., 2019). Some loans and advances that were measured at FVPL as trading assets under IAS 39 are measured at AC or FVOCI as a result of the business model designation and the fulfillment of the cash-flow criterion.

**Effects on impairment:** Deloitte’s study on the six major banks in the UK showed that all the banks experienced an increase in impairment provision at the transition to IFRS 9 on 1st January 2018. Total IFRS 9 impairment charge in the 2018 reporting period remained generally in line with or slightly lower than the IAS 39 equivalent in the previous two reporting periods (Deloitte, 2019a). The results of similar studies by Deloitte on 5 major Nigerian banks do not differ significantly from the above studies on the 6 major UK banks. All the banks experienced an increase in impairment charges during the transitional phase of IFRS 9. Subsequently, the banks experienced a general decrease in IFRS 9 impairment charges during the 2018 financial year compared to the IAS 39 equivalent charge for the previous period (Deloitte, 2019a).

Further studies by EBI showed a decrease in the loan loss reserve. The loan loss reserve is a balance sheet line item that represents accumulated loan loss provision over several years. This reserve is increased by additional loan loss provision and decreased by quarterly charge-off each year. Whilst banks and consultancies expected an increase in loan loss reserve, academic researchers projected it to be fairly stable.

From the above literature review, it is evident the impact of IFRS 9 to some extent depends on the credit risk approach of the banks, country of incorporation and size of the banks (Deloitte, 2016; EY, 2018). It is

therefore imperative to study the implementation effects of IFRS 9 in all regions for which IFRS 9 has been implemented or adopted. However, empirical academic literature on African banks is rarely available. Therefore, this paper seeks to fill this gap in empirical literature by examining the first-time adoption effects of IFRS 9 from an African perspective by placing a central focus on the Ghanaian banking sector.

## RESEARCH DESIGN AND METHODOLOGY

This paper adopts a quantitative and descriptive approach to study the post-adoption effects of IFRS 9 on equity, impairment provisions, non-performing loans (NPLs) and classification and measurement of financial assets. Qualitative disclosures by these banks were taken into consideration to complement the quantitative analysis to have a holistic view of the effects. The study used published audited annual reports of Ghanaian banks from 2016-2018. “Ghanaian banks” herein refer to all licensed commercial banks with operational existence in Ghana and not solely Ghanaian-owned banks.

### Data sources and scope of the study

For each institution, mainly two data sources were used. Firstly, the published audited annual reports as PDF versions were obtained from the corporate websites. They contain both quantitative data as well as qualitative comments.

External auditors are known to give credibility and reliability to financial statements by offering independent audit opinions. Therefore, by using data hand collected from published audited annual reports, the author can guarantee the robustness and reliability of the data for the study. The 2017-2018 banking sector crisis in Ghana led to the revocation of licenses of some commercial banks as well as the consolidation of some banks. Coincidentally, the 2018 fiscal year corresponds with the period for the first time mandatory adoption of IFRS 9 in the Ghanaian banking sector. Thus, the proposed study covered all licensed commercial banks that existed before and after the mandatory adoption of IFRS 9 on 1st January 2018. The study period covered 2015 to 2018 fiscal years. To complement the published audited annual reports, some banks published detailed transition reports as well as further press releases that were considered.

### Sampling procedure and technique

This study adopted a simple random sampling approach as it made equal room for all banks to be selected on grounds of data availability for the pre and post-IFRS 9 eras. The study covered all commercial banks operating in Ghana before and after the implementation of IFRS 9. Before the mandatory adoption of IFRS 9 in 2018, there were 34 commercial banks. However, the banking sector re-capitalization in Ghana which ended on 31st December, 2018 saw some banks exiting the banking space while others were consolidated. After the recapitalization exercise in 2018, the total number of operating commercial banks in Ghana stood at 23. The target population comprised 23 commercial banks as of December 31st, 2018 from which the sample was drawn. To end up with the desired homogeneity, the first filter regarding the sample relates to the elimination of banks that could not meet the recapitalization and were eventually phased out. The second filter was dependent on data availability for the pre and post-IFRS 9 study period. Thus, 4 newly formed consolidated banks were taken out due to the

unavailability of data for the pre-IFRS 9 era since these newly consolidated banks were not in operational existence. In effect, the sample size was 19 commercial banks. The final sample however contained 17 banks as data for two of the remaining banks was not readily available. The final list of the sampled banks is shown in Appendix Table 1.

### Data analysis

Trend analysis of the published financial statements was used to determine the variations in key balance sheet items as a result of the adoption of IFRS 9. It is worthy of mention that IFRS 9 made room for banks to either apply the full retrospective application or modified retrospective application. The full retrospective application involves the restatement of the financial statement for the earliest comparative period before the implementation of the new standard. Since IFRS 9 implementation was effective on 1st January 2018, the 2017 financial statement which serves as the earliest comparative would have been restated to comply with IFRS 9 if the banks adopted the full retrospective application. The modified retrospective application involves effecting the adjustment of the new standard that would have had on the earliest comparative financial statement as a line item in the retained earnings through the Statement of Changes in Equity. Due to the ease of the modified retrospective application, all banks in Ghana adopted that approach just like the majority of the banks in other jurisdictions. Thus, a direct comparison of the 2018 financial statement with the 2017 comparative financial statement was not feasible. Therefore, in measuring the first-time (short-term) post-adoption effects of IFRS 9 on Ghanaian banks, the author considered the preceding 3 years' average of selected income statement and balance sheet items expected to be impacted following the implementation of IFRS 9 on 1st January 2018. In effect, the average change for 2015, 2016, and 2017 representing the usual volatility in the banks' financial years was calculated. The average of this usual change was then compared with the change in the 2018 financial year to determine the change as a result of IFRS 9 adoption. The excess of the 2018 change over the average usual change is used to visualize the immediate post-adoption effects of IFRS 9. Also, peculiar developments in the Ghanaian banking sector such as the effects of the 2017-2018 banking crisis and the introduction of the new minimum regulatory capital in the 2018 fiscal year were all taken into account in analyzing and interpreting our results. Descriptive statistics were used to analyze, visualize and interpret the results of this study.

## RESULTS

### Balance sheet effects

Key balance sheet line items were selected and analyzed to examine the first-time adoption effects of IFRS 9 on the balance sheets of Ghanaian banks (Table 1). The percentage change for the 2018 financial year was calculated. The 2018 financial year represents the year for the first time implementation of IFRS 9. Also, the average percentage change for the years 2015, 2016, and 2017 was calculated. The change from 2015 to the 2017 fiscal year represents the usual change in the balance sheet items as a result of the normal volatility in the operating environment of the studied banks.

This enabled us to visualize the abnormal change which was not due to the normal operating conditions.

Alpha denotes the difference between the percentage changes in 2018 compared to the average percentage usual changes.

Thus, Alpha represents the excess of the normal balance sheet volatility and provides a useful measure of the volatility triggered by IFRS 9. The calculated data is aggregated across the whole sample, dependent on data availability.

The high decrease in Alpha for cash and cash equivalent is mainly attributable to the banking crisis and consolidation of some banks in 2018 which caused panic withdrawal by some customers. This effect is therefore not a major IFRS 9 shift. Non-pledged trading securities decreased significantly following the implementation of IFRS 9 partly as a result of changes in the classification and measurement of financial assets. According to theoretical literature, the overall amount of outstanding loans is expected to decrease following IFRS 9 implementation as the rise in impairment charges at the transition to IFRS 9 is expected to reduce outstanding loan balances. In contrast, our study found an increase in the overall amount of outstanding loans and advances. This effect is partly explained by the injection of fresh capital by the under-capitalized banks in their bid to meet the Bank of Ghana's new minimum capital requirement. Under-capitalized banks, therefore, introduced additional capital which increased their ability to lend more loans to the public. Thus, the high Alpha for loans and advances is not a major IFRS 9 shift. The change in other assets is partly due to changes in the classification and measurement of financial assets as a result of IFRS 9. Deposits from customers decreased significantly not because of IFRS 9 introduction but mainly due to the uncertainty brought about by the banking crisis.

Even though most liabilities such as derivative liabilities, current, and deferred tax liabilities saw significant changes, this effect is not attributable to IFRS 9, as the treatment of financial liabilities remained largely unchanged. Stated capital increased drastically as a result of the injection of additional capital. This change is therefore not an IFRS 9 change.

Income surplus decreased significantly as a result of the IFRS 9 impact. The impact on equity will be explained further under the equity effect.

### Equity effects

One of the major impacts of IFRS 9 according to the literature review is its impact on Common Equity Tier1 (CET1) ratio.

CET1 capital represents the highest quality or core capital items. The ratio was introduced by Basel III and measures capital in terms of the percentage of an institution's risk-weighted assets. The CET1 capital includes common shares or stated capital, share surplus, retained earnings or income surplus, other comprehensive income (OCI), and minority interest. Impairment

**Table 1.** Key balance sheet line items affected by IFRS 9.

Key balance sheet items	% Change in 2018	AVG % Usual change	Alpha
Cash and Cash Equivalents	8.55	28.05	-19.49
Non-Pledged Trading Assets	102.50	119.77	-17.273
Loans and Advances to Customers	20.30	8.23	12.070
Investment Securities	18.91	51.49	-32.588
Current Tax Assets	146.32	-14.12	160.432
Deferred Tax Assets	59.87	13.38	46.486
Intangible Assets	18.87	117.60	-98.729
Other Assets	-17.47	51.23	-68.708
Total Assets	19.22	28.12	-8.905
Deposits From Customers	15.44	27.48	-12.035
Borrowings	43.14	35.40	7.736
Derivative liabilities	102.84	-66.98	169.814
Current Tax Liabilities	-14.56	36.51	-51.066
Deferred Tax Liabilities	-27.60	239.03	-266.631
Other Liabilities	17.21	33.54	-16.329
Total Liabilities	17.93	28.40	-10.468
Stated Capital	157.80	16.15	141.642
Income Surplus	-54.68	44.09	-98.768
Total Shareholders' Equity	27.01	26.69	0.318

Source: Author's calculation based on the data collected.

provisions net of tax arising under IFRS 9 will therefore directly affect regulatory capital through the profit and loss statement as undistributed profit or loss for the period is transferred to retained earnings or income surplus. Conclusively, they will be immediately reflected in the CET1 ratio (BIS 2018).

At first glance from Figure 1, all the studied banks recorded a significant increase in CET1 capital contrary to the expectation in the literature. However, this unusual expectation is not one of the major impacts of IFRS 9. The increase in the CET1 capital was a result of the introduction of the additional capital by the under-capitalized banks to meet the new minimum capital requirement introduced by the Bank of Ghana in 2018. According to PwC Ghana Banking Sector Survey, over GHS1.5 billion was injected as fresh capital into the banking sector in 2018. It is therefore not surprising that all the banks recorded a significant rise in CET1. The capital adequacy ratio increased to 23.42% in 2018 compared to 19.45% and 17.28% in 2017 and 2016 respectively. However, this effect is not a major IFRS 9 shift but basically, a result of the increase in minimum capital. Thus, a further level of analysis was essential to better visualize IFRS 9's impact on the CET1 capital. Figure 2 shows the actual impact of IFRS 9 on the CET1 capital after controlling for the additional capital introduced.

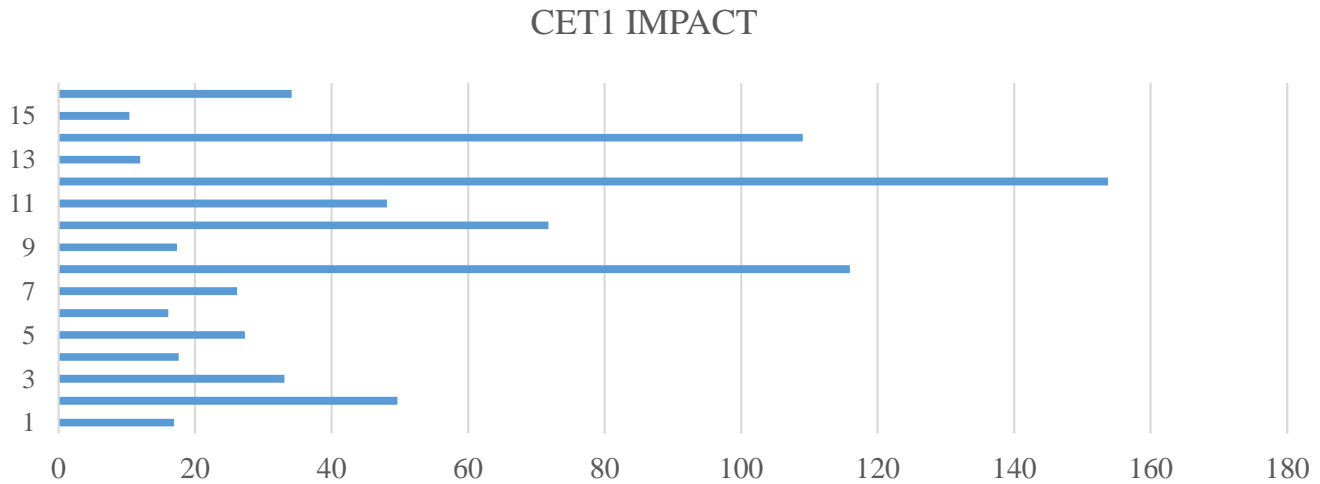
The variation in stated capital between the 2018 and 2017 financial years shows the additional capital introduced by the banks in 2018. After this effect is taken

into account, it is observed that 80% of the studied banks recorded a negative reduction in CET1 capital which corroborates the expectation of the literature. The negative effect on CET1 capital was a result of the increase in impairment charge at the transition to IFRS 9 on 1st January 2018. This impacted the net profit for the period which in turn affected the retained earnings or income surplus as seen under the overall balance sheet effects. Since retained earnings or income surplus forms part of the CET1 capital, a decrease in the retained earnings ultimately affected the CET1 capital negatively. Only 20% of the sampled banks recorded an increase in CET1 capital after the introduction of IFRS 9.

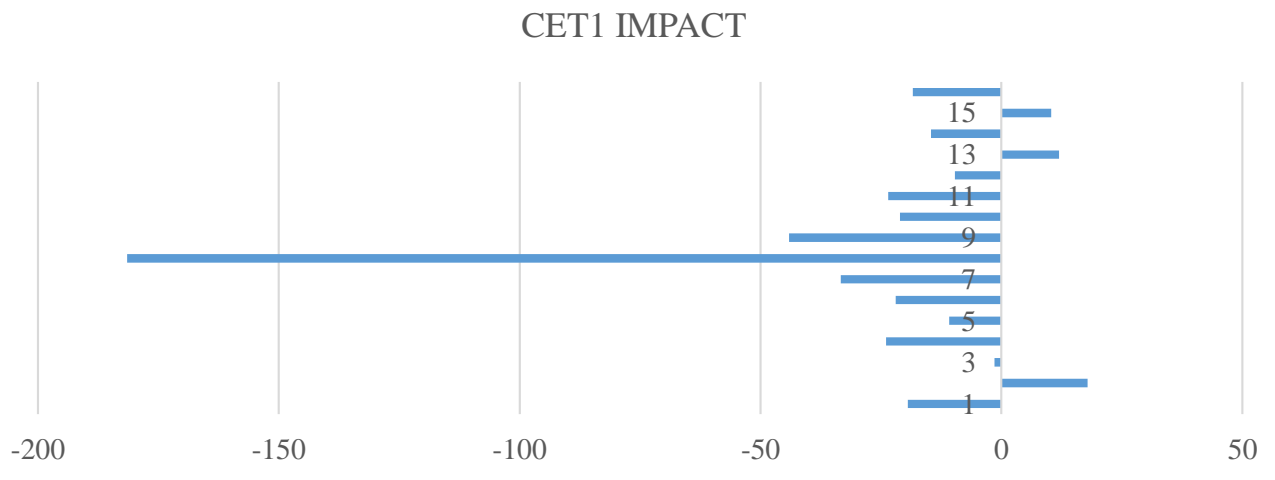
### Impairment effects

As seen from the literature review, it is obvious that one of the significant changes that the introduction of IFRS 9 brings is the expected credit loss model. This model is projected to result in earlier and timely recognition of credit loss right from the origination of loans and advances. The expected credit loss model is projected to increase impairment charges which will reduce the overall amount of outstanding loans and advances. Figure 3 shows the development in an impairment charge in Ghana Cedi (GHS) among the studied banks from the period 2015 to 2018.

It can be observed from Figure 3 that, the yearly impairment charge by the sampled banks decreased



**Figure 1.** CET1 impact before accounting for the injection of new capital by the banks.  
Source: Authors own illustration based on the data collected.



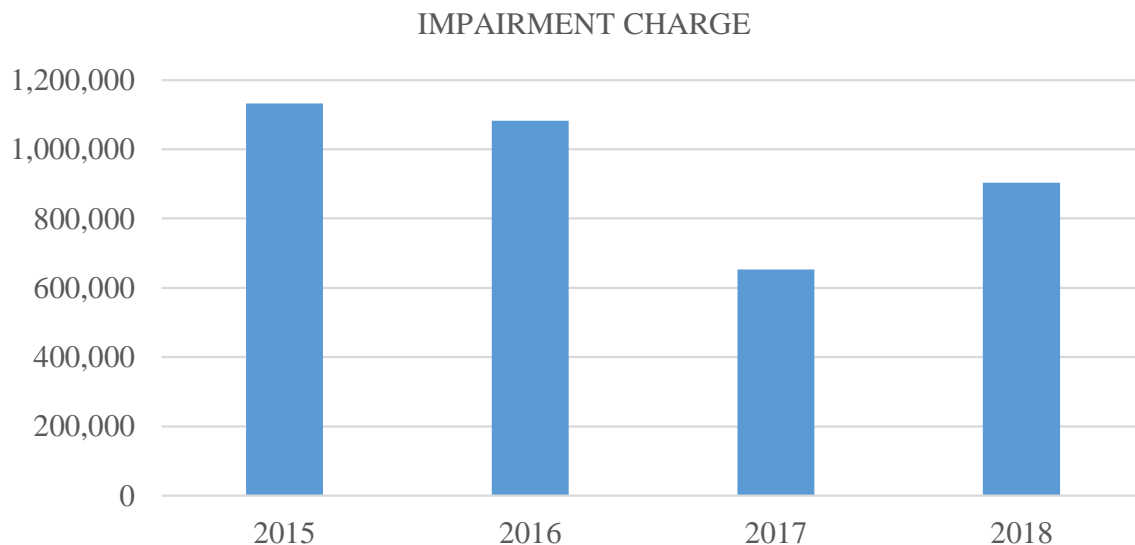
**Figure 2.** CET1 impact after controlling for the injection of new capital by the banks.  
Source: Author's illustration based on the data collected.

consistently till 2017. However, when IFRS 9 was implemented in 2018, the impairment charge increased. This supports the expectation in the literature that the implementation of IFRS 9 is expected to increase impairment provisions. The increase in an impairment charge for the 2018 financial year was mainly a result of an increase in impairment provision at the transition to IFRS 9 on 1st January 2018. As explained under the equity effect, the increase in an impairment charge for the year affected the net profit, thereby hurting regulatory capital through its impact on retained earnings. The three years average non-performing loan ratio for the studied banks was 18.78% compared to 19.55% in 2018.

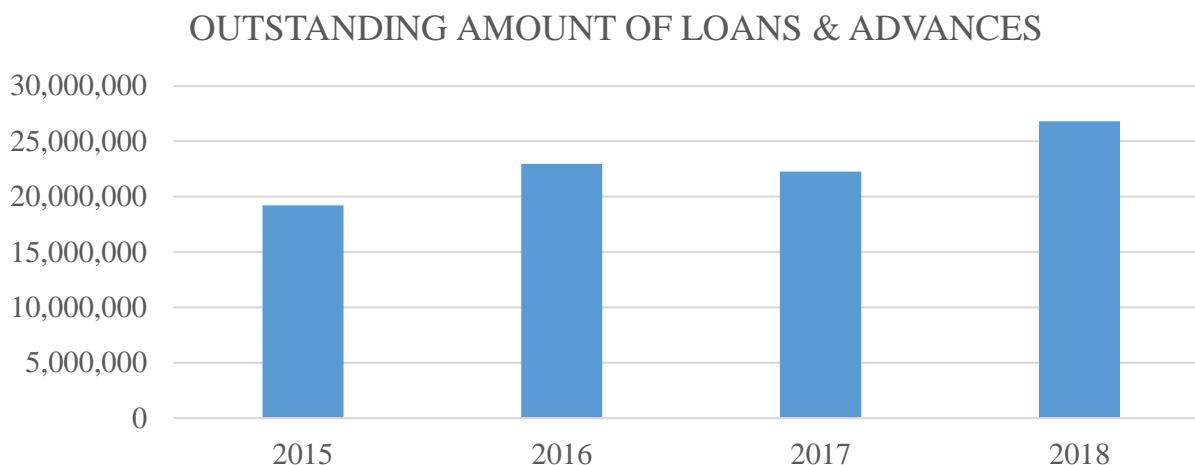
In terms of IFRS 9 impact on the overall outstanding amount of loans and advances, our result is different from

the expectation in the literature. Though the majority of the banks experienced a significant increase in impairment charges after the adoption of IFRS 9 in 2018, other offsetting factors such as the injection of additional capital by the under-capitalized banks increased the number of loans and advances granted in 2018. The increase in loans and advances during the year was enough to mitigate the impact of high impairment provisions on the overall amount of outstanding loans and advances at the end of the 2018 fiscal year. Figure 4 shows trends in the outstanding amounts of loans and advances.

The outstanding amount of loans and advances increased in the 2018 financial year contrary to the expectation of literature and prior studies. This is a result



**Figure 3.** Trends in an impairment charge.  
Source: Author’s illustration based on the data collected.



**Figure 4.** Trends in the outstanding amount of loans and advances.  
Source: Author’s illustration based on the data collected.

of other factors such as the new minimum capital requirement directive by the Bank of Ghana which enabled the banks to grant more loans in 2018 and not necessarily the IFRS 9 effect.

**Classification and measurement effects**

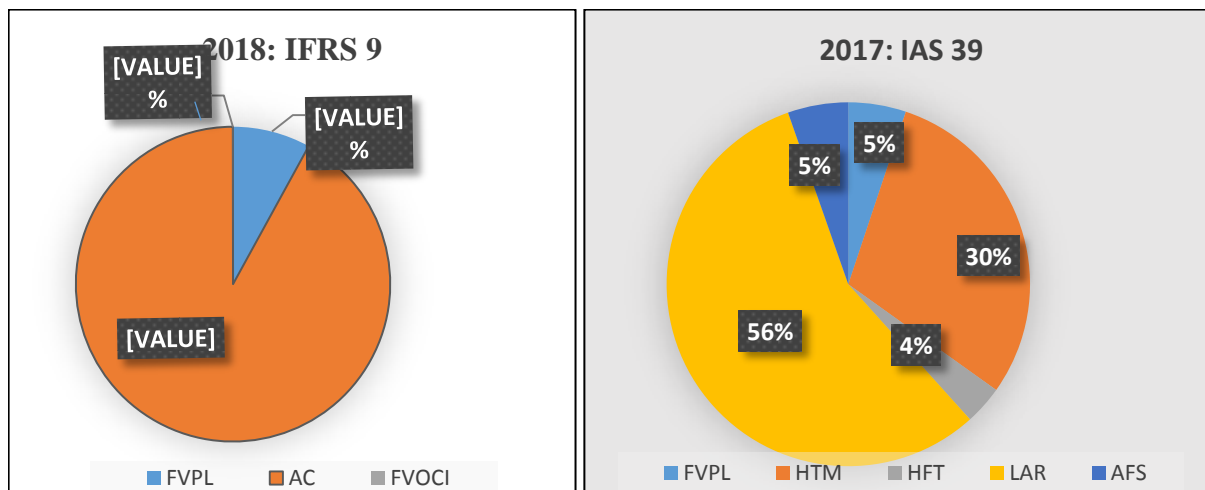
The effects on classification and measurement are broadly in line with the expectations discussed in the literature. The findings show that most financial assets remained in the initial classification and measurement category under IAS 39. Figure 5 provides an overview of

the classification category under both IFRS 9 and IAS 39.

Following the adoption of IFRS 9, the majority of financial assets such as loans and advances, receivables, and held-to-maturity are still classified as amortized costs as they passed the sole payments of principal and interest (SPPI) test.

Thus, they still met the cash flow criterion and are held in a business model “held to collect” contractual cash flows. Loans and advances, as well as receivables, formed a significant portion of financial assets classified as an amortized cost under IFRS 9. Under IAS 39, loans and advances and held to maturity financial assets jointly accounted for 86% of the entire portfolio of financial





**Figure 5.** Classification overview under IFRS 9 and IAS 39. Source: Author's illustration based on the data collected.

assets. Amortized cost financial assets formed 91.99% of the overall portfolio of financial assets under the new standard. This compared with the 86% under IAS 39 indicated that there was no significant change in financial assets held in a business model for their contractual cash flows.

Under IAS 39, financial assets at fair value through profit or loss (FVPL) and held for trading financial assets (HTM) jointly accounted for 10% of the overall portfolio of financial assets, whilst under IFRS 9, fair value through profit or loss (FVPL) financial assets accounted for 7.99% of the gross portfolio of financial assets. Financial assets that did not meet the amortized cost and fair value through profit or loss criterion were subsequently reclassified as fair value through other comprehensive income (FVOCI). These included financial assets that were previously designated as available for sale (AFS) under IAS 39. Available for sale financial assets are mixed portfolios assets partly held to collect contractual payments and partly sold but with a significantly lower frequency than in trading. Available for sale financial assets that no longer met the contractual cash flow characteristics were reclassified as fair value through profit or loss. Therefore, financial assets carried at fair value through other comprehensive income (FVOCI) accounted for a negligible 0.02% of the total portfolio of financial assets under IFRS 9 while available for sale (AFS) financial assets measured at fair value through other comprehensive income (FVOCI) accounted for 5% of the portfolio under IAS 39. The classification and measurement of financial liabilities nevertheless largely remained unchanged under both IFRS 9 and IAS 39.

## Conclusion

The adoption of IFRS 9 (Financial Instruments) is

expected to significantly impact financial institutions as financial instruments account for a significant portion of their balance sheets. Theoretical literature argues that the impact of IFRS 9 is projected to vary depending on the banks' credit risk approach, country of incorporation, and size (Deloitte, 2016; EY, 2018). It is therefore imperative to study the implementation effects of IFRS 9 in all regions for which IFRS 9 has been implemented or adopted. In contrast, empirical academic studies on the post-implementation effect of this standard on African banks are very limited or barely available. Thus, this paper was necessitated by the gap in empirical knowledge on the post-implementation effects of IFRS 9 from an African context. This study investigated the first-time implementation impacts of IFRS 9 on Ghanaian banks by sampling 17 out of the 23 operating commercial banks due to data availability. The study period covered 2015 to 2018 financial years using financial data hand collected from the published audited annual reports of the sampled banks as well as useful press releases and commentaries on the transitional impacts of IFRS 9.

Trend analysis of the financial statement was employed to study the post-adoption effects of IFRS 9 on regulatory capital (CET1 capital), impairment provisions and non-performing loans (NPLs). Qualitative disclosures by these banks were taken into consideration to complement the quantitative analysis to have a holistic view of the effects. The author accounted for the usual volatility in the banks' financials due to the changes in the economic and operating environment over the three years before the implementation of IFRS 9. This usual change represents the yearly change that is not caused by IFRS 9. The average of this usual change is then compared with the change in the 2018 financial year to determine the change as a result of IFRS 9.

The results of the study were broadly in line with the expectation of the literature. The findings of the study

indicated that the overall balance sheet effects are broadly aligned with literature with few exceptions. Balance sheet line items such as non-pledge trading assets and other assets recorded significant changes as a result of changes in classification and measurement. On the other hand, outstanding loans and advances increased, contrary to the expectation of literature as a result of the new minimum capital requirement which increased the banks' lending abilities. Therefore, this is not IFRS 9 shift. Retained earnings were adversely affected due to the rise in impairment provisions. Treatment of financial liabilities largely remained the same.

The study also revealed that in terms of the impact of IFRS 9 on regulatory capital, it appeared that regulatory capital in the form of common equity tier 1 capital increased. This increase was basically due to the increase in minimum capital requirement by the Bank of Ghana which saw the injection of fresh capital by the majority of the banks. A further analysis controlling for the effect of the additional capital revealed that 80% of the studied banks recorded a decrease in their CET1 capital mainly as a result of an increase in impairment charge for the 2018 financial year which reduced the net profit and thus affected the regulatory capital negatively.

The impact of IFRS 9 on impairment supported the results of prior studies as the majority of the banks recorded an increase in impairment provision at the transition to IFRS 9 on 1st January 2018. The high impairment charge negatively affected regulatory capital. In terms of the impact of a high impairment charge on the outstanding amount of loans and advances, the findings showed that despite the rise in impairment provision, the outstanding amount of loans and advances increased on grounds of the additional capital injection which made room for the banks to advance more credit in the 2018 fiscal year.

On the classification and measurement of financial assets, the study showed that amortized costs accounted for a significant portion of the overall portfolio of financial assets held by these banks. There was no significant change in terms of classification and measurement of financial liabilities.

The study contributes to the existing body of literature on the post-implementation effects of IFRS 9 on firms. Most importantly, it contributes significantly to the non-existing empirical academic literature on IFRS 9 in Africa by drawing insight into the first-time adoption effects of IFRS 9 on Ghanaian banks. It serves as the prima reference point for assessing the actual impacts of IFRS 9 on African banks and provides a baseline for future evaluation of the long-term impact of IFRS 9 on other sectors in Ghana and Africa at large. The implementation effects of IFRS 9 are projected to differ across jurisdictions due to the country of incorporation and firm size. The results of this study are thus very useful for global standards setters such as the International

Accounting Standards Board (IASB) who need feedback from all regions for which IFRS 9 has been implemented to form a basis for future revision and or modification to this standard. The findings suggest that a proper regulatory and supervisory framework, as well as consistent application of IFRS 9, will be essential to leverage optimal utility from the standard.

One of the main limitations of this research is the short study horizon as it focused on the immediate post-adoption effects of IFRS 9, that is, the first-year implementation effect using trend analysis. With the availability of data, future research should focus on investigating the long-term impact of IFRS 9 in the Ghanaian banking sector as some of the effects are not immediately visible. More so, future studies can be extended to Sub-Saharan Africa as empirical literature on IFRS 9 adoption is very scarce from this region.

## CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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## Appendix

**Table 1.** List of banks.

<b>Number</b>	<b>Sampled banks</b>	<b>Short name</b>
1	Absa Bank Ghana Limited	ABSA
2	Access Bank	ABL
3	ADB Bank Limited	ADB
4	Bank of Africa Ghana Limited	BOA
5	CAL Bank Limited	CAL
6	Ecobank Ghana Limited	EBG
7	Fidelity Bank Ghana Limited	FBL
8	GCB Bank Limited	GCB
9	Guaranty Trust Bank (Ghana) Limited	GTB
10	Prudential Bank Limited	PBL
11	Republic bank	RBL
12	Société Générale Ghana Limited	SG-GH
13	Stanbic Bank Ghana Limited	SBG
14	Standard Chartered Bank Ghana Limited	SCB
15	United Bank for Africa Ghana Limited	UBA
16	Universal Merchant Bank Ghana Limited	UMB
17	Zenith Bank Ghana	ZBL

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