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Original Research

Diversification Strategy and Financial Performance of Insurance Firms: Evidence from Iran

Seyed Amirhossein Shojaei[1]

Faculty of Business and Management, Muscat University, Muscat, Oman

Abstract

This paper investigates the impact of diversification strategy on firm performance. The paper looks into three dimensions of diversification strategy in terms of staff, product and geographical presence, using return on asset (ROA) and return on equity (ROE) to proxy for financial performance. Using the fixed effects regression estimation method to analyze the data of 30 Iranian insurance companies in the period from 2012-2021, the article finds a significant positive impact of diversification in terms of staff education on ROA, while the relationships between staff diversification in terms of gender and experience with ROA are significantly negative. No significant relationship is found between diversification in terms of geographical presence, insurance policy, and premium with ROA. When ROE measures financial performance, the research reports significantly positive effects of diversification on ROE in terms of education and insurance policy. In contrast, the relationships between diversification in terms of gender and premium with ROE are found to be significantly negative. Meanwhile, the effects of diversification on ROE in terms of geographical presence and experience are insignificant. The paper contributes to the literature on diversification strategy by developing specific models to measure staff, geographic and product diversification strategies in the insurance industry. It also adds to the literature on the diversification-performance nexus by bringing fresh insight into the multiple dimensions of diversification strategies and their impacts on firms' profitability.

Keywords: Diversification, financial performance, insurance industry, Iran.

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[1] *Corresponding author's Email: amirhosein.shojaee@yahoo.com*

Introduction

Diversification has been a strategic choice for firms that wish to expand for several decades, although not all firms follow this pattern of expansion (Le, 2019). Extensive studies have analyzed the relationship between different diversification aspects and firm performance in different industries in many countries (Phung and Mishra, 2016). The literature on firms' diversification reveals the existence of different diversification strategies among companies and suggests that diversification strategies exercised by corporations are both complex and multi-faceted (Cole and Karl 2016).

Whether an insurance company can benefit from a diversification strategy (for example, offering a diversified product portfolio or geographic locations for underwriting or claim settlement to its policyholders) is still an unanswered question (Le 2019, Krivokapic et al. 2017).

Against this background, the paper aims to examine the impacts of those complex and multi-faceted diversification strategies on insurers' financial performance. Using the data of 30 Iranian insurance companies in the period of 10 years from 2011 to 2021 and the fixed effect estimation method, the paper reports the significant impacts of product, geographic and staff diversification on firms' financial performance.

This study makes three contributions to the literature. First, it provides the diversification strategy literature with measurement models to proxy for staff, geographic and product diversification strategies in the insurance industry. Although earlier studies on staff, geographic and product diversification were partially helpful in advancing the understanding of aforementioned relationships and recognition of different findings and opinions, there was no research investigating the diversification-firm performance nexus in the insurance industry, using all of the measures introduced in this paper. This might be attributed to the difficulty of including all dimensions of diversification strategy in one study or the unavailability of the data for previous researchers. In particular, this research distinguishes diversification strategy into three main dimensions: Staff, geographic, and product diversification. To measure staff diversification, this paper uses three proxies: education, gender and work experience of insurance firms' employees. The total number of sales agents and the firm's branches are calculated and applied to the regression models for geographic diversification. Finally, product diversification is defined by using two measures: the number of policies underwritten in a company, in a line of business, for one year (product diversification $_{policy}$) and the total premium collected in a company, in a line of business, for one year (product diversification $_{premium}$). Second, this research adds to the literature on the diversification-performance nexus by bringing fresh insight into the multiple dimensions of diversification strategies and their impacts on firms' profitability. Third, this current research is the first study that examines the diversification in the insurance industry and its impacts on the financial performance of firms in Iran's insurance market. Since the context of this study is the insurance industry of Iran as a whole, the analysis of diversification–financial performance among all types of insurance companies leads to key contributions to both practitioners and scholars, as the vast majority of studies on the subject only investigate health insurers or property-casualty lines of business. The insurance-specific analysis reveals significant perspectives about

the relationship mentioned above, considering the inconclusive results and lack of consensus among researchers in previous studies. Therefore, to improve understanding of diversification strategy in the insurance context, this study completes, combines, and enhances earlier studies by using several measures, an extensive set of secondary data, and introducing new scales that can be justified and applied smoothly in the insurance market.

Theoretical background and hypotheses

Definitions of the diversification strategy

There have been many definitions of diversification since the concept was added to the business and management discipline in the 1950s when the well-known American strategist Ansoff published the "Strategies for Diversification" article in "Harvard Business Review". According to Ansoff's definition (1957), diversification is a business strategy for developing new markets with new products. Penrose (1959) argues that diversification is increasing the number and variety of final products in addition to vertical integration. Other scholars, such as Gort (1962), state that diversification occurs when companies develop new markets which are different from the original markets, which has some overlap with Ansoff's definition.

However, more narrowed-down definitions of diversification can be found in recent studies. For instance, Su and Tsang's study (2015) states that product diversification (PD) exists when companies have operations in several industries or product markets. One of the other aspects of diversification, i.e., geographic diversification (GD), has been discussed by many scholars. Subramaniam and Wasiuzzaman (2019) argue that geographic diversification is the diversification of a business across multiple locations to increase profitability for the firm. Yildirim and Efthyvoulou (2018) divide geographic diversification into two categories: intra-regional GD, which refers to diversification within a region where a firm is already operating, and inter-regional GD, which highlights diversification across the regions that are new to the firm. In addition to PD and GD, staff diversification (SD) is another aspect of diversification studied in this paper. Staff (workforce) diversification is defined by Saxena (2014) as differences among employees in terms of age, cultural background, physical abilities and disabilities, race, religion, gender, and sexual orientation. Bruna et al. (2021) studied the impact of gender diversification on corporate performance and considered gender as one of the aspects of staff diversification. In another study, Cennamo and Gardner (2008) argue that a diverse workforce comprises employees from different cultures with different characteristics, aspirations, and expectations. Finally, Hofhuis et al. (2016) claim that employee differences indicate workforce diversity.

Hypotheses

The extant empirical literature has shown different and even contradictory results for the impacts of diversification strategy on the financial performance of firms (Nigam & Gupta, 2023). In addition, some scholars, such as Datta et al. (1991) and Lin and Chang (2015), demonstrated that the diversification-financial performance relationship is a contextually dependent concept. Therefore, this section aims to formulate different

hypotheses that can explain all the existing relationships between different aspects of diversification strategy and financial measures of firms' performance (ROA and ROE). Table 1 summarizes some of the previous studies on the diversification-firm performance field.

Table 1. Diversification-Performance Relationship Summary

Type of Diversification-performance Relationship	Advocators
Low level of diversification, better financial performance	Clark et al. (1994) Rogers (2001) Liebenberg et al. (2008) Berger et al. (2010) Shim (2011)
High level of diversification, better financial performance	Grant (1988) Meador et al. (1997) Pandya and Roa (1998) Hyland and Diltz (2002) Estes, K. (2014) Ai et al. (2018) Omosa et al. (2022)
Related diversification, better financial performance	Bettis (1981) Hill (1987) Becerra (2009) Park and Jang (2013) Seifzadeh (2017) Gyan & Jan-Bezemer (2022)
Unrelated diversification, better financial performance	Hitt and Ireland (1986) Doukas and Travlos (1988) Elsas et al. (2010) La Rocca and Staglianò (2012)
Inconsistent relationship between diversification and financial performance	Capar and Kotabe (2003) Elango et al. (2008) Stantarelli and Tran (2013) Ekkayokkaya and Paudyal (2015) Stantarelli and Tran (2016) Stetz & Scifres (2018) Arte & Larimo (2022) Nigam & Gupta (2023) Alfar et al. (2023)
No relationship between diversification and financial performance	Servaes (1996) Ravichandran et al. (2009) Iqbal et al. (2012)

The relationship between product diversification and firms' financial performance

Using the data extracted from the annual reports of Iran's central insurance, the number of policies underwritten and premiums collected in each line of business are used to measure product diversification. The reason for measuring product diversification by these two measures is to account for the nature of insurance contracts in different lines of business. In some insurance lines, such as auto and travel insurance, while the number of individual policies underwritten by a firm can be high, the total premium collected is not too much due to the small sums insured. On the other hand, in some other lines of business, such as engineering insurance, the number of policies is considerably lower than other popular lines, while the total generated premium is high due to the value of each project (also called sum insured). Therefore, this study uses both measures to investigate how product diversification impacts insurers' financial performance in Iran.

- PD_{policy} = the number of policies underwritten in one line of business in one year divided by the total number of underwritten policies in all business lines in the same year.

- $PD_{premium}$ = the premiums collected in one line of business in one year divided by the total premium collected in all lines of business in the same year.

According to the Modern portfolio theory (MPT), insurance companies benefit financially from a diversified portfolio of risks or insurance products (Alzobi 2020, Lee 2020, Duijm and Beveren 2020, and Dong and Wong 2000). Other scholars have also reported a positive relationship between product diversification and firms' financial performance in the insurance context in different territories (Ortynski 2019, Peng et al. 2017, Krivokapic et al. 2017, Cole and Karl 2016, Shi et al. 2016, Meador et al. 2000). Accordingly, it is expected that product diversification increases the profitability of Iranian insurers. Therefore, the following hypotheses are proposed in this thesis:

Hypothesis 1 (H1): Product diversification policy is positively associated with the financial performance of firms in the insurance industry.

Hypothesis 2 (H2): Product diversification premium is positively associated with the financial performance of firms in the insurance industry.

The relationship between geographic diversification and firms' financial performance

The total number of agents and branches in one year across the country (Iran) has been used to construct geographic diversification variable. It is a good indicator of geographic dispersion, specifically for traditional markets like Iran, where most people still prefer traditional methods, such as face-to-face or in-office purchases, to modern methods, such as online purchasing (Haghighi et al., 2016). For more clarification, it is worth mentioning that in 2018, total auto insurance premiums written online in Iran were less than 1% of the total premium collected in the same line of business, while in a developed economy like the UK, the number for the same year was 58.7% (Rudden, 2023).

- Geographic diversification = number of sales agents of a firm in one year + number of branches of a firm in the same year (total number of sales agents and branches that sell insurance products for a firm in one year)

Kaže (2010) highlights the significance of consumers' values and purchasing habits in choosing a particular distribution channel in the insurance context. Haghighi et al. (2016) explain that creating a friendly face-to-face relationship with potential customers leads to positive purchasing decisions and increases sales in Iran. Their research shows that traditional purchasing behaviour is still preferable for Iranians, compared to online shopping, which can be attributed to cultural values and preferences. Therefore, being physically present (as insurance firms' branches or sales agents) in different geographic areas is critical for Iranian insurers. Similarly, other researchers, such as Che et al. (2017) and Krivokapic et al. (2017), argue that a positive relationship exists between geographic diversification and firms' performance in different countries. Therefore, the hypothesis (H3), which partially helps answer the main research question of this article, is formulated as follows:

Hypothesis 3 (H3): *Geographic diversification is positively associated with the financial performance of firms in the insurance industry.*

The relationship between staff diversification and firms' financial performance

The Central Insurance of Iran's annual report has categorized staff working in the insurance industry based on gender, work experience in the insurance sector and education. Therefore, in this chapter, insurance firms' staff have been divided into male or female (based on gender), above ten years or below ten years of work experience and master's degree and above or bachelor's degree and below for education.

- Staff Diversification $_{Gender}$: Staff has been categorized based on gender, i.e., male or female.

- Staff Diversification $_{Experience}$: Staff with more than ten years of work experience or less than ten years of work experience.

- Staff Diversification $_{Education}$: Staff with master's degree and above or those with bachelor's degree and below.

The existing literature suggests a positive relationship between staff diversification and firms' performance. For example, Triguero-Sanchez et al. (2018) state that diversified staff lead to higher performance in Spanish firms. In addition, Armstrong et al. (2010) show that staff diversity is positively associated with firms' performance in manufacturing and service firms in Ireland. However, few researchers have studied the relationship between staff diversification and firms' financial performance in the insurance industry. Similar to the findings of other industries, Nnadi and Chinedu (2019) argue that staff diversity is essential in improving deposit insurance companies' performance in Nigeria. Accordingly, it is expected that a positive relationship exists between staff diversification and the financial performance of Iranian insurance firms, and the following hypotheses are proposed:

Hypothesis 4 (H4): *Staff diversification* _{Gender} *is positively associated with the financial performance of firms in the insurance industry.*

Hypothesis 5 (H5): *Staff diversification* _{Experience} *is positively associated with the financial performance of firms in the insurance industry.*

Hypothesis 6 (H6): *Staff diversification* _{Education} *is positively associated with the financial performance of firms in the insurance industry.*

The relationship between product, geographic, and staff diversification and firms' financial performance

Firms may wish to pursue several diversification strategies to increase their profitability simultaneously. For example, Krivokapic et al. (2017) state that product and geographic diversification strategies are positively associated with firms' profitability. Therefore, according to the above discussions and hypotheses, this study proposes that the compound model of diversification strategies increases the profitability of diversifiers. Hypothesis 7 is formulated as below:

Hypothesis 7 (H7): *Diversification* _{Product, Geographic and Staff} *is positively associated with the financial performance of firms in the insurance industry.*

Accordingly, the theoretical models of product, geographic and staff diversification relationships with the financial performance of insurance companies in Iran are illustrated below in Figure 1.
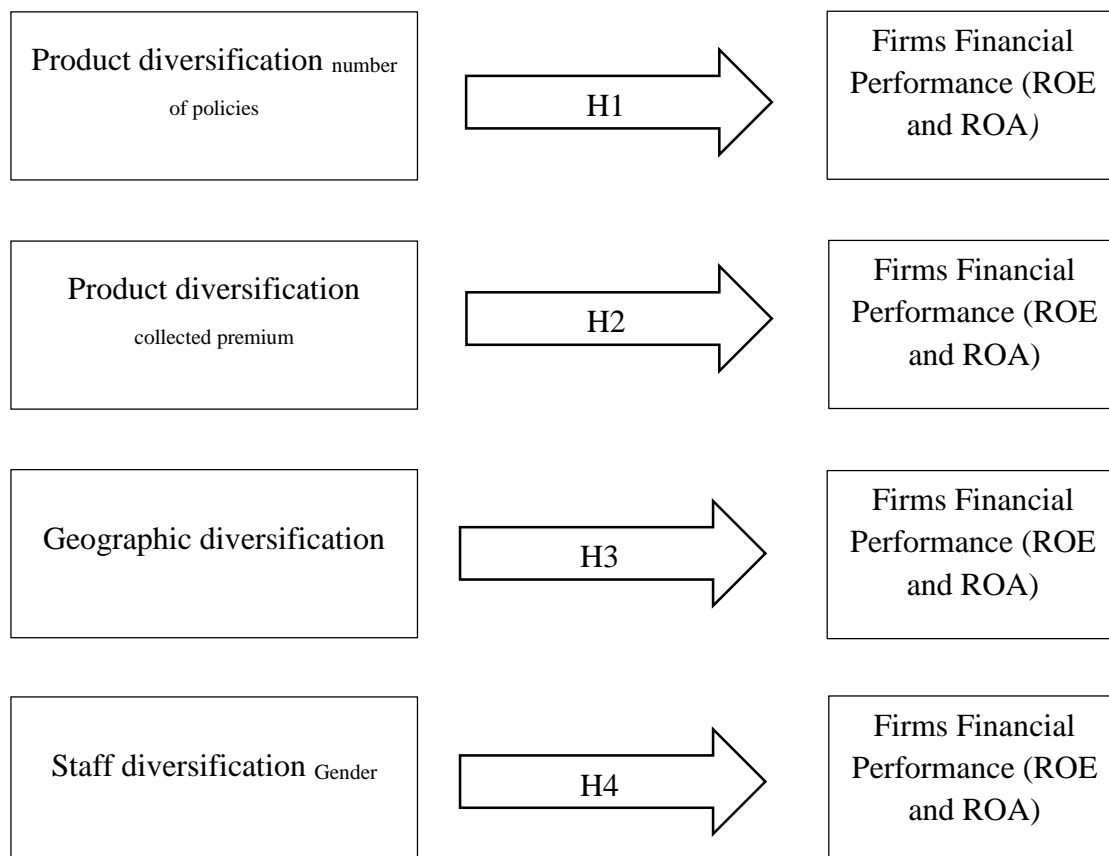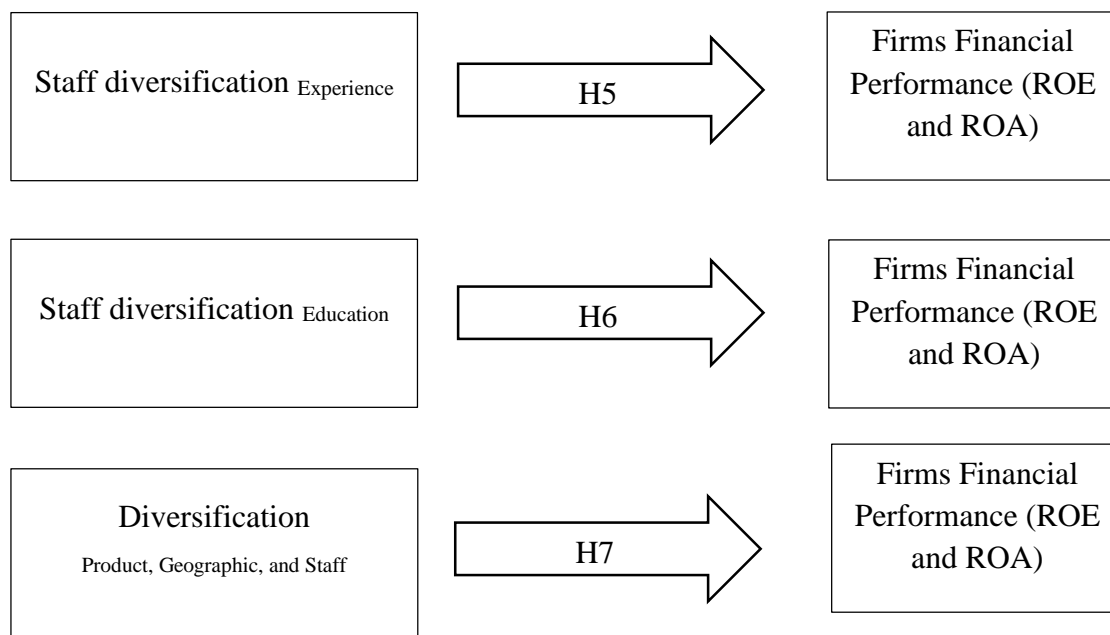
Figure 1. Theoretical model of the relationship between diversification strategy and firms' financial performance

Methodology

Research sample and data

This paper uses the research sample of 30 Iranian insurance companies from 2012-2021. The data is obtained from the market annual reports database of Central Insurance of Iran (CII), which is the regulatory and statutory body of Iran's insurance market. Availability and access to this database are of particular benefit to this study. The requirements of reporting to the regulatory and statutory body of Iran's insurance market are such that these reports provide not only standardized financial information and financial ratios of all Iranian insurance companies but also detailed information on different lines of business, including the number of policies and written premiums. Besides, there is additional data about firm size, staff's gender, education and work experience, and the number of agents and branches that sell insurance products for each firm. The data required for measuring product diversification, gender diversification and staff diversification, ROA and ROE, was extracted from CII annual reports for all of the insurance companies (30 firms) operating in Iran for 10 years (2012 to 2021), including 300 observations in total which is an unbalanced dataset.

Measures

Measurement of diversification

There are several ways to measure the degree of diversification of a firm, a market, or an industry. Herfindahl Hirschman index (also known as HHI), Jacquemin and Berry's entropy measures, and Rumelt's classification system are among the famous methods used

for diversification measurement (Persson and Lindgren 2005). However, the Herfindahl Hirschman index is the most common method used for measuring the level of focus or diversification of firms (Hanson et al. 2019, Brezina et al. 2016, Sarmento and Nunes 2015, Djolov 2013) while using panel data. HHI has also been used in measuring the relationship between diversification strategy and a firm's financial performance or profitability in the insurance context (Ng, M. K. 2020, Dauda 2018, Krivokapic et al. 2017, Cole and Karl 2016). It should be mentioned that as the Herfindahl Hirschman Index is a measure of concentration, one minus HHI demonstrates a diversification ratio (Kim et al. 2019, Rubio-Varas and Muñoz-Delgado 2019 and Chikoto et al. 2016). Following the literature, in this paper, for measuring the concentration ratio based on insurance products, the HHI index (product concentration ratio) is defined as below:

$$\text{HHI}_{product\text{-}premium} = \sum_{j=1}^{N} \left(\frac{DPW_j}{\sum_{j=1}^{N} DPW_j} \right)_j^2$$

$$\text{DIV}_{product\text{-}premium} = 1 - \text{HHI}_{product\text{-}premium}$$

Hence, the measure of product diversification $_{premium}$ may range only from zero to one.

Where:

DPW_j is the monetary value of direct premium written (DPW) by an insurance company in product line j in a given year.

$\sum_{j=1}^{N} DPW_j$ is the monetary value of a direct premium written by an insurance company in all lines of business in a given year.

Moreover, DIV $_{product\text{-}premium}$ is product diversification based on written premium, equal to 1 minus concentration ratio (HHI).

Similarly:

$$\text{HHI}_{product\text{-}policy} = \sum_{j=1}^{N} \left(\frac{NPW_j}{\sum_{j=1}^{N} NPW_j} \right)_j^2$$

$$\text{DIV}_{product\text{-}policy} = 1 - \text{HHI}_{product\text{-}policy}$$

Hence, the measure of product diversification $_{policy}$ may range only from zero to one.

Where:

NPW_j is the number of insurance policies written (NPW) by an insurance company in product line j in a given year.

$\sum_{j=1}^{N} NPW_j$ is the number of insurance policies written (NPW) by an insurance company in all lines of business in a given year.

Furthermore, DIV $_{product\text{-}policy}$ is product diversification based on the number of policies equal to 1 minus concentration ratio (HHI).

However, for other aspects of diversification that are studied in this paper, i.e., geographic and staff diversification, the HHI index is not used. Instead, as for each variable, there is only one value associated with a given year (for example, the number of agents and firms' branches in an insurance company for a given year or the number of males in an insurance company for a given year), the corresponding values have been inserted into the model directly.

Measurement of firm performance

To measure the financial performance of firms, return on assets (ROA) and return on equity (ROE) were used. These variables are the most popular indicators of financial performance in the diversification-performance literature (Krivokapic et al., 2017, Elango et al., 2008, Wang et al., 2007).

Control variables

Different insurance firms operate in Iran's insurance industry, considering the age, size, ownership structures, and types. Besides, the variables mentioned above have been extensively used for measuring the relationship between diversification and financial performance of firms (Subramaniam and Wasiuzzaman 2019, Lee 2017, Krivokapic et al. 2017, Su and Tsang 2015, Foong and Idris 2012 and Elango et al. 2008).

The firm's age is defined as the years it has been operating since its establishment. At the time of data collection, the oldest and youngest Iranian insurance companies in Iran were 86 and 4 years old, respectively.

Although there are different ways to measure the size of a firm in the literature, firm size is usually represented by the number of employees (Lin et al. 2021, Ibhagui and Olokoyo 2018, Rogers 2004). Therefore, the same measure is used in this paper to indicate an insurer's size.

Iranian insurers are divided into public, private and semi-private firms for ownership structure. Among the 30 domestic insurers operating in Iran's market, only 1 firm is publicly owned, 3 are semi-private, and 26 are private (Annual Industry Report, Central Insurance of Iran, 2021).

According to their core business, Iranian commercial insurers are divided into 3 categories: direct insurers, reinsurers and protection and indemnity (P&I) clubs. All three types of insurance companies are currently operating in Iran, including direct insurers (26 firms), reinsurers (2 firms) and protection and indemnity (P&I) clubs (2 firms). Since the core business of each of the 3 categories is unique and different to the others, the type of

insurance company is used as another control variable in this study. A summary of variable definitions is illustrated in Table 2.

Table 2. Descriptions of variables

Variable	Definition
product diversification	One minus the product Herfindahl Hirschman index
geographic diversification	total number of agents and branches that sell insurance products for a firm in one year
staff diversification	staff diversification $_{Gender}$: number of staff based on their gender, i.e., male or female, in one company staff diversification $_{Experience}$: number of staff with more than 10 years of work experience or less than 10 years of work experience in one company staff diversification $_{Education}$: number of staff with master's degree and above or bachelor's degree and below in one company
Firm's size	LOG (SIZE), where the size of a firm is the total number of employees who work for an insurer in one year
Firm's age	LOG (AGE+1), where the age of a firm is the number of years that an insurance firm is operating in the market
Firms' ownership	public, private, and semi-private insurers
Firms' type	Direct insurers, reinsurers, and protection and indemnity (P&I) clubs

Model specifications

Given that panel data regression is utilized, the general model is formulated as below:

Financial performance $_{it}$ = α_0 + β_1 Diversification $_{it}$ + β_2 Size $_{it}$ + β_3 Type $_{it}$ + β_4 - Ownership Structure $_{it}$ + β_5 Age $_{it}$ + ε_{it} (1)

Where ROA and ROE measure the financial performance of insurer i in year t, diversification is the vector with various measures of diversification strategy (product, geographic and staff) in insurance company i during year t. Size, type, ownership, and age are control variables for insurer i in year t. Finally, ε_{it} is the error term.

Diagnostic tests

Table 3 shows the correlation among the independent variables with the VIF value calculated for when firm performance is measured with ROE and ROA. There is no evidence of multicollinearity in the models as all of the VIF values are located between 1 and 5 ($1 < \text{VIF} \leq 5$) as per guidance by econometrics literature (e.g., Kroll and Song 2013, Dalkani et al. 2012, and Asghari Zakaria et al. 2006).

Table 3. Correlation matrix and VIF values

	Variable	1	2	3	4	5	6	7	8	VIF (ROE)	VIF (ROA)
1	Diversification $_{education}$	1.000	0.151	-0.050	-0.281	-0.140	-0.147	-0.153	-0.348	1.57	1.31
2	Diversification $_{experience}$	0.151	1.000	-0.149	0.130	0.053	-0.028	0.267	0.144	1.16	1.25
3	Diversification $_{gender}$	-0.050	-0.149	1.000	-0.191	-0.072	-0.087	-0.121	-0.215	1.20	1.23
4	Diversification $_{geographic}$	-0.281	0.130	-0.191	1.000	0.487	0.433	0.631	0.930	1.22	1.26
5	Diversification $_{policy}$	-0.140	0.053	-0.072	0.487	1.000	0.550	0.151	0.379	3.14	3.19
6	Diversification $_{premium}$	-0.147	-0.028	-0.087	0.433	0.550	1.000	0.231	0.380	2.38	2.07
7	AGE	-0.153	0.267	-0.121	0.631	0.151	0.231	1.000	0.682	2.66	2.60
8	SIZE	-0.348	0.144	-0.215	0.930	0.379	0.380	0.682	1.000	2.66	2.56

Data analysis methods

Econometric literature suggests several estimation methods to analyze multiple-level data, including panel data. Pooled ordinary least square (pooled OLS) models can be adopted by researchers when different samples are selected for years or periods of the panel data. On the other hand, using fixed-effects or random-effects models is popular while observing the same sample of individuals, cities, firms, etc., over a period of time (Wooldridge, 2010). This paper adopts the fixed effects method among the two estimation methods (fixed effects versus random effects) according to the data size.

Findings

Descriptive statistics

Descriptive statistics for the variables describing the relationship between firms' diversification strategy and financial performance are presented in Table 4.

Table 4. Descriptive statistics

	ROA	ROE	AGE	SIZE
Mean	4.57	16.89	15.14	646.43
Median	3.41	17.10	10.00	380.50
Maximum	17.26	43.31	86.00	4614.00
Minimum	-0.52	-5.76	0.00	5.00

Hypothesis testing results

Table 5 shows the regression results of Equation (1) when firm performance is measured with ROA. It can be seen from Table 3 that the relationship between diversification $_{education}$ and ROA is significantly positive, while the relationship between diversification $_{gender}$ and diversification $_{experience}$ with ROA is significantly negative. On the other hand, no meaningful and significant relationship is found between diversification $_{geographic}$, diversification $_{policy}$ and diversification $_{premium}$ with ROA in this model. In

addition, considering the control variables, the firms' size is negatively associated with ROA in this model, i.e., smaller companies benefit from higher ROA than larger firms.

Table 5. Results of the impact of diversification _{staff, geographic and product} on ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIV_EDUCATION	5.794695	2.418952	2.395540	0.0173
DIV_GENDER	-16.18028	4.226553	-3.828245	0.0002
DIV_EXPERIENCE	-2.390613	1.109469	-2.154736	0.0321
DIV_GEO	9.97E-05	6.71E-05	1.487040	0.1382
DIV_POLICY	-1.862296	2.214107	-0.841105	0.4011
DIV_PREMIUM	-0.038342	1.482462	-0.025864	0.9794
GENERAL_INSURER	2.610892	1.981491	1.317640	0.1888
GOVERNMENT	-1.005114	1.306923	-0.769069	0.4426
LOG(SIZE)	-0.837521	0.301175	-2.780844	0.0058
LOG(AGE+1)	-0.258951	0.493986	-0.524207	0.6006
C	14.87396	2.747973	5.412703	0.0000
Effects Specification				
Period fixed (dummy variables)				
Weighted Statistics				
R-squared	0.340545	Mean dependent var		0.582281
Adjusted R-squared	0.292355	S.D. dependent var		1.239627
S.E. of regression	1.018982	Sum squared resid.		269.9642
F-statistic	7.066590	Durbin-Watson stat		1.966096
Residual Cross-Section Dependence Test				
Null hypothesis: No cross-section dependence (correlation) in weighted residuals				
Equation: EQ_ROA_P_ALL				
Periods included: 10				
Cross-sections included: 30				
Total panel observations: 300				
Note: non-zero cross-section means detected in data				
Cross-section means were removed during the computation of correlations				
Test	Statistic		d.f.	Prob.
Breusch-Pagan LM	356.2848		435	0.7826

The regression results of Equation (1) when firm performance is measured with ROE are presented in Table 6. This table shows that the relationship between diversification _{education} and diversification _{policy} with ROE is positive, while the relationship between diversification _{gender} and diversification _{premium} with ROE is negative. On the other hand, no meaningful and significant relationship is found between diversification _{geographic}, diversification _{experience} with ROE in this model. In addition, considering the control variables, the firms' age and ownership structure are positively and negatively associated with ROE in this model, i.e., older companies benefit from higher ROE. At the same time, public insurers' ROE is less than private and semi-private firms.

Table 6. Results of the impact of diversification staff, geographic and product on ROE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIV_EDUCATION	18.99533	8.659829	2.193499	0.0292
DIV_GENDER	-29.30587	13.53078	-2.165867	0.0312
DIV_EXPERIENCE	-2.681827	4.279400	-0.626683	0.5314
DIV_GEO	0.000277	0.000316	0.877556	0.3810
DIV_POLICY	17.65748	7.701909	2.292610	0.0227
DIV_PREMIUM	-16.49992	5.914348	-2.789812	0.0057
GENERAL_INSURER	-6.552162	6.806346	-0.962655	0.3366
GOVERNMENT	-11.28596	4.583826	-2.462125	0.0145
LOG(SIZE)	0.865524	1.033157	0.837746	0.4029
LOG(AGE+1)	3.504578	1.494018	2.345740	0.0197
C	19.32439	8.799841	2.195993	0.0290
	Effects Specification			
	Period fixed (dummy variables)			
	Weighted Statistics			
R-squared	0.157671	Mean dependent var		0.873771
Adjusted R-squared	0.096116	S.D. dependent var		1.190229
S.E. of regression	1.031033	Sum squared resid		276.3875
F-statistic	2.561473	Durbin-Watson stat		1.974355
Prob(F-statistic)	0.000489			
Residual Cross-Section Dependence Test				
Null hypothesis: No cross-section dependence (correlation) in weighted residuals				
Equation: EQ_ROE_P_ALL				
Periods included: 10				
Cross-sections included: 30				
Total panel observations: 300				
Note: non-zero cross-section means detected in data				
Cross-section means were removed during the computation of correlations				
Test	Statistic		d.f.	Prob.
Breusch-Pagan LM	340.1202		435	0.9196

Table 7. Summary of the research findings

Diversification Strategy		Firms' Financial Performance		Effective Control Variables
		ROA	ROE	
Staff Diversification	DIV education	Positively associated	Positively associated	Size: negative Type (direct insurer): negative Age: positive
	DIV gender	Negatively associated	Negatively associated	Size: negative Type (direct insurer): negative Ownership structure (governmental): negative
	DIV experience	Negatively associated	Insignificant relationship	Size: negative Type (direct insurer): negative
Geographic Diversification		Positively associated	Insignificant relationship	Size: negative
Product Diversification	DIV policy	Insignificant relationship	Positively associated	Size: negative Type (direct insurer): negative
	DIV premium	Insignificant relationship	Negatively associated	Size: negative
Diversification staff, geographic and product		DIV education: Positively associated DIV gender: Negatively associated DIV experience: Negatively associated DIV geographic: Insignificant relationship Product DIV policy: Insignificant relationship Product DIV premium: Insignificant relationship	DIV education: Positively associated DIV gender: Negatively associated DIV experience: Insignificant relationship DIV geographic: Insignificant relationship Product DIV policy: Positively associated Product DIV premium: Negatively associated	Size: negative Ownership structure (governmental): negative Age: positive

Discussion

The findings of this paper are unique and novel. To the best of the author's knowledge, there is no research examining the impacts of diversification strategy in terms of staff, geographical presence and products on the performance of firms in general, and more specifically in the insurance industry. Despite being new, the findings generally align with and support extant literature suggesting the significant impacts of diversification strategies on firms' performance. In particular, the negative relationship between gender diversification and firms' financial performance (both ROA and ROE) can be justified by Iran's cultural, religious, and ethical environment. As Iranian firms have to follow the theocratic government instructions (Islamic laws), gender diversity may create an unfavourable workplace environment for the staff of insurance companies by creating some religious or even legal restrictions for employees while interacting with their colleagues. However, this topic is valuable and could be studied in more detail by other scholars in the future.

In contrast, education diversification demonstrates a positive relationship with ROA and ROE. According to the CII annual report, in 2020, only 24% of insurance companies' staff held a master's degree and above level of education. Therefore, it can be concluded that more educated staff can increase the profitability of Iranian insurers, as they can exercise their knowledge and expertise in favour of their employers. The insignificant relationship between geographic diversification and firms' profitability indicates that although geographic expansion requires intensive investment, it does not meaningfully impact firms' profitability in this context. Therefore, by considering the resource-based view (RBV) theory for diversification, firms are attracted to diversify if they possess extra resources or capabilities which can be delivered into other areas (Hauschild and Knyphausen-Aufseß, 2013). Therefore, geographical expansion is not necessary for financial success, specifically for firms under financial pressure, and managers should allocate their resources to other areas that can generate more profit. Product diversification-firms' performance relationship reveals interesting results. As mentioned previously, product diversification policy is positively associated with insurers' profitability. This result is justifiable by the law of large numbers in insurance. Based on the law of large numbers, if the number of insureds is large enough, the actual loss per event will equal the expected loss per event (Smith and Kane, 1994). Hence, if the number of policyholders increases, the probability of insurers' failure decreases, as they have enough financial resources to cover the incurred losses. In addition to the independent variables, the relationships between control variables and the profitability of Iranian insurers are noticeable. The results indicate a negative relationship between size and ROA. Therefore, the number of employees in Iranian insurance companies needs the immediate attention of the top-level managers. It should be mentioned that despite the existing relationship, in 2021, the overall number of employees in Iran's insurance industry increased by 7% compared to 2020 (CII, 2021). Besides, the ROE of publicly owned insurers is less than that of private and semi-private insurers. Therefore, privatizing 32.3% of the insurance market, which belongs to the government (CII, 2021), can increase firms' profitability. Finally, the relationship between the age of insurers and ROE is positive, which means younger firms have been less profitable compared to older competitors. This might be attributed to the competitive advantages of older firms (such as building customer trust, familiarity with the market forces, or the existence of the law

of large numbers), which they have gained over time. In future research, this area can also be valuable to be studied by insurance scholars and practitioners in-depth to investigate the underlying reasons behind the relationship between the firms' age and profitability.

The findings of this paper provide three theoretical contributions, as discussed in the introduction. Moreover, this study offers some implications for insurance managers. ***First***, diversification has a broader meaning than product diversification, which regulators, CEOs, and top-level managers of Iranian insurers mainly consider. It is worth mentioning that according to this study, diversification can move much beyond its traditional and early definitions. Hence, staff and geographic diversification might be as crucial as insurers' product diversification. As a result, the findings of this study can help decision-makers in Iran's insurance market draw strategic plans and select competitive strategies at different levels of decision-making. ***Second***, based on the results collected from the Iranian insurance market, the relationship between different aspects of diversification and firms' financial performance suggests different implications. As illustrated in summary Table 7, positive, negative and insignificant relationships have been found in the diversification-firm performance study of Iranian insurers. Therefore, business owners, key decision-makers in insurance firms and regulators should be careful about the different implications of diversification strategies for their companies and the whole insurance industry by considering the costs and benefits of diversification decisions. However, as highlighted earlier and following the literature, the diversification – firms' financial performance relationship is a contextual-dependent concept; hence, this scenario might differ in other industries, economies, or periods.

Conclusion

This paper attempts to answer the research questions about whether significant relationships exist between staff, geographic and product diversification strategies on firms' performance. More specifically, it investigates if diversification contributes to insurers' financial performance in Iran. The paper uses secondary data collected from all Iranian insurance companies from annual reports of Central Insurance of Iran (The insurance market's regulatory body in Iran) for 10 years. This rich database provided valuable and reliable information about different aspects of a diversification strategy for both independent and dependent variables. Firstly, this research developed the diversification measurement index mainly using the HHI index. Through the categorization of staff based on education, gender and experience, 3 measures are constructed for staff diversification. The total number of sales agents and branches is used to indicate the geographic diversification of Iranian insurers. For constructing product diversification measures, the number of policies underwritten in a company, in a line of business, for one year and the total premium collected in a company, in a line of business, for one year is introduced. Furthermore, popular control variables in diversification-performance studies, such as the firm's age, size, and ownership structure, are incorporated into insurance-specific control variables (firm type) to enable the researcher to understand existing relationships better. Lastly, financial performance data extracted from financial statements of Iranian insurers is indicated by ROA and ROE in this study.

The empirical results of this paper indicate mixed findings on the relationship between different aspects of diversification strategy and firms' financial performance. Specifically,

this paper finds a significant positive impact of diversification in terms of education on ROA, while the relationship between diversification in terms of gender and diversification in terms of experience with ROA is significantly negative. On the other hand, no significant relationship is found between diversification in terms of geographical presence, diversification in terms of insurance policy, and premium with ROA. The relationship between diversification in terms of education and diversification in terms of insurance policy with ROE is found to be significantly positive. In contrast, the relationships between diversification in terms of gender and premium with ROE are found to be significantly negative. Moreover, the paper reports insignificant relationships between diversification in terms of geographical presence and work experience with ROE.

This research has some limitations. The details and size of the dataset are the main limitations of this study since some of the information, such as staff's cultural background, physical abilities and disabilities, race, and religion, was not included in the annual reports used in this study, while those details are among staff diversification definitions (Saxena, 2014). In addition, from a methodological point of view, some econometric models, such as the random effect, could not be applied to this study due to the data size. Moreover, the confirmed data of Iranian insurers was available for only 10 years, while the results could be more robust and reliable if the time period could exceed 10 years. Therefore, the relatively small sample size of Iranian insurance companies and the limited period is acknowledged. Accordingly, the findings need to be interpreted cautiously, specifically in terms of generalization to other countries, industries, or periods. However, the results provide valuable insights for both insurance practitioners and academics. Therefore, future research should attempt to expand the findings and the models used in this paper by collecting a larger sample of companies from larger insurance markets or repeat data collection for a longer time in a specific market and analyzing the results while considering proper intermediating variables. Finally, designing a comparative study among two or more countries can make it much easier to decide about a generalization of diversification and firms' financial performance relationship, significantly contributing to academics and practitioners interested in or working in the insurance industry.

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Original Research

Impact of Self-Directed Career Attitude on Employee Job Satisfaction: Mediating Role of Leadership

Muhammad Babar Iqbal[1] [iD], Jianxun Li [iD], Shahina Qurban Jan [iD], Tribhuwan Kumar Bhatt [iD]

Department of Economics and Management, Xi'an University of Technology, Xi'an, China

Abstract

The self-directed career attitude encompasses the willingness to take ownership and control of one's career path and actively steer one's professional growth and advancement. The present study aims to investigate the influence of self-directed career attitude (SDCA) on employee job satisfaction (EJS). This study additionally investigates the mediating function of leadership in the relationship between self-directed career attitude (SDCA) and employee job satisfaction (EJS). Four hypotheses were formulated in order to examine both the direct and indirect connections. The primary data was obtained by administering a questionnaire and then analyzed using partial least squares structural equation modeling. The demographic information was analyzed using the statistical package for the social sciences. The theoretical framework employed in this study was self-determination theory. The test results indicate a significant positive correlation between SDCA, leadership, and EJS. The findings also suggest a noteworthy positive mediating influence of leadership in the relationship between SDCA and EJS. This study aims to enhance our understanding of the causes and outcomes of human behavior on human resources, hence playing a crucial role in facilitating efficient career management and formulating suitable HR policies.

Keywords: Employee job satisfaction, leadership, protean career attitude, self-directed career attitude.

[1] *Corresponding author's Email: babariqbal@stu.xaut.edu.cn*

Introduction

A career can be defined as the ongoing process of professional growth and advancement that an individual undergoes, involving a series of employment positions, responsibilities, and encounters over their occupational trajectory. Career development is a series of successive roles, occupations, and pursuits undertaken over time, typically within a particular domain or sector, to attain personal satisfaction, economic security, and actualize one's vocational ambitions. A career is characterized by the ongoing cultivation of skills, knowledge, and competence, and it may entail navigating through various transitions, advancements, and adaptations in order to address evolving conditions and objectives. A career serves as the principal source of financial sustenance for most individuals, affording them the ability to provide for their own well-being and that of their families. The achievement of financial stability, which is facilitated by a prosperous professional trajectory, empowers individuals to fulfill their fundamental necessities, follow individual aspirations, and strategize for forthcoming endeavors.

A career extends beyond financial support, as it significantly influences multiple dimensions of an individual's personal and professional well-being. A satisfying professional trajectory enables individuals to partake in employment congruent with their interests, values, and passions. The experience of deriving significance and contentment from one's occupation can positively impact an individual's holistic happiness and well-being. The attainment of a prosperous professional trajectory plays a pivotal role in fostering the establishment and consolidation of a robust professional persona. Accomplishing advancements and acknowledgments within a particular domain can enhance an individual's sense of self-worth and standing internally within their business and externally within the wider professional sphere.

A profession provides opportunities for progression and development. Through a combination of commitment and exertion, individuals have the ability to advance to positions of greater authority, assume additional obligations, and avail themselves of novel prospects and trials. In order to succeed in a professional setting, individuals must be able to effectively navigate and respond to dynamic conditions, incorporate emerging technologies, and stay abreast of growing trends within their respective industries. This promotes the development of resilience and the capacity to navigate obstacles effectively. A profession is a vital element of an individual's existence that profoundly impacts their overall welfare, sense of direction, economic security, personal development, and involvement in society. The process encompasses the exploration of one's own identity, learning new abilities, and continuous personal growth, ultimately exerting a significant influence on an individual's life trajectory. There exists a range of career theories encompassing both classic and current perspectives. The protean career is a concept that encompasses two dimensions, one of which is known as the SDCA.

SDCA refers to an individual's proactive and empowered approach to directing their career path, development, and decision-making. Individuals exhibiting SDCA demonstrate proactive behavior by taking initiative, establishing personal objectives, and actively pursuing avenues for personal growth and professional progression. A notable

degree of independence, introspection, and accountability in determining one's career path defines this disposition.

Individuals who possess an SDCA demonstrate a sense of responsibility and accountability for their work choices and decisions. Individuals do not exclusively depend on external direction but exercise their discernment to make well-informed decisions under their unique values and objectives. Individuals exhibiting SDCA continuous learning actively pursue educational opportunities in order to augment their abilities and expand their knowledge. Individuals are willing to engage in novel experiences and pursue opportunities for training and education that facilitate their advancement in their respective professional domains. Individuals evaluate options, assess risks, and make choices by comprehensively grasping their skills and interests. These individuals demonstrate proactive behavior by actively pursuing opportunities for personal and professional success and acquiring new skills. Rather than passively waiting for possibilities to arise, they proactively generate opportunities. SDCA entails assuming responsibility for one's professional development, actively pursuing avenues for growth, and making decisions consistent with individual aspirations and principles. The concept enables individuals to effectively navigate their professional trajectory with autonomy, purpose, and resilience.

In western society, the idea of PCA has arisen, and a lot of study has been conducted there. There aren't many empirical studies looking at these new constructs in Asian contexts (Iqbal, Li, Yang, & Sindhu, 2022). These ideas were previously discussed in relation to performance and corporate behavior. Additionally, there was no study available to test the aforementioned theory in the context of SMEs. The SDCA scale was created in 2006, and it is necessary to test such occurrences in various organizational and cultural contexts. Given the foregoing information, the main goal of this study is to analyze the SDCA in relation to EJS and leadership. It also examines the mediating function of leadership between SDCA and EJS.

The Self-Determination Theory (SDT) and the notion of an SDCA exhibit a convergence of core ideas. Both theories highlight the significance of autonomy, intrinsic motivation, and personal agency in influencing an individual's behavior, encompassing their attitude toward career growth and decision-making. SDT is a psychological framework that Deci and Ryan (1985) formulated. This study aims to comprehend individuals' motivation and conduct by examining three fundamental psychological needs: autonomy, competence, and relatedness. The SDCA exhibits a strong correlation with the ideas of SDT, specifically regarding the concepts of autonomy and intrinsic drive. SDT significantly focuses on autonomy and personal choice in making professional decisions. Individuals with this mindset proactively navigate their professional trajectories by considering their personal preferences, strengths, and objectives, aligning with the autonomy requirement in SDT. Individuals with an SDCA frequently have a strong internal drive to pursue their professional aspirations. Individuals derive happiness and delight from establishing and attaining their goals, which resembles the concept of intrinsic motivation highlighted by SDT. Both SDT and the SDCA emphasize the importance of personal agency, empowerment, and intrinsic motivation in influencing human behavior. An SDCA is congruent with the tenets of SDT, as individuals who assume responsibility for their career trajectories are more inclined to encounter

contentment, psychological well-being, and a sense of accomplishment in their vocational endeavors.

This study aims to examine the direct influence of SDCA on employee job satisfaction and leadership. Additionally, this study investigates the mediating effect of leadership on the relationship between SDCA and EJS. Four hypotheses have been suggested to investigate the link mentioned above.

Literature Review

SDCA and EJS

EJS pertains to the favorable emotional state and general satisfaction employees derive from their employment, workplace conditions, and organizational affiliation. The aspect above holds significant importance as it has the potential to influence productivity, staff retention, and overall organizational success. Satisfaction among employees has been found to correlate positively with their level of engagement and motivation, ultimately resulting in enhanced job performance and productivity. According to Locke (1976), employees who experience satisfaction are more inclined to exert more effort to attain their objectives and contribute to the firm. Individuals are more motivated to remain within the business (Hulin, 2014). Individuals cultivate a sense of loyalty and attachment, resulting in an increased probability of remaining affiliated with the organization and making constructive contributions to its cultural milieu (Meyer & Allen, 1997).

The correlation between EJS and SDCA is intricately interconnected and reciprocally reinforcing. Both notions significantly enhance an individual's holistic well-being, level of engagement and overall success within an organizational context. Individuals who possess an SDCA exhibit inherent motivation in pursuing professional aspirations. Individuals derive satisfaction and happiness from their proactive engagement in professional growth. There is a strong correlation between intrinsic motivation and job happiness. When employees are actively involved in tasks that are congruent with their interests and passions, there is a higher likelihood of them experiencing job satisfaction and a heightened sense of purpose. The relationship between SDCA and employee job satisfaction is intertwined due to their shared focus on autonomy, intrinsic motivation, personal development, and alignment with individual values and objectives. Organizations that cultivate a conducive atmosphere wherein employees are empowered to assume responsibility for their professional growth and actively contribute are more inclined to have contented, motivated, and high-achieving personnel.

The concept of autonomy grants individuals the ability to exert control and possess ownership over their work, thereby augmenting their job satisfaction (Hackman & Oldham, 1976). Employees who are content and actively participate in SDCA are more inclined to undergo personal development and achieve higher levels of job satisfaction (Judge, Thoresen, Bono, & Patton, 2001). According to Chughtai and Buckley (2019), individuals are more likely to feel well-being, specifically work satisfaction, when their career choices align with their beliefs and ambitions. The present meta-analysis investigates the relationship between work satisfaction and employee turnover. According to Ng, Feldman, and Butts (2014), employees who are actively involved in

their work and have a sense of SDCA are more inclined to experience job satisfaction and exhibit a solid dedication to their respective businesses. Consequently, this heightened level of engagement and commitment diminishes the likelihood of turnover intentions among these individuals.

EJS is a significant determinant that has influence over multiple dimensions within a company, encompassing performance, retention, commitment, and the overall well-being of employees. Organizations that prioritize cultivating and nurturing a pleasant work environment that is favorable to enhancing job satisfaction are more likely to experience the advantages of increased employee engagement and overall organizational success. Consequently, the subsequent hypothesis was formulated:

H₁: SDCA has a positive impact on EJS

SDCA and Leadership

Leadership can be defined as the systematic exertion of influence, guidance, and direction over individuals or groups with the ultimate objective of attaining a shared purpose or vision. The task at hand encompasses encouraging, inspiring, and assisting individuals to engage in collaborative and efficient work. Leadership is a multifaceted concept that involves a diverse array of behaviors, talents, and qualities. These attributes collectively empower an individual, referred to as a leader, to effectively provide guidance, make informed decisions, and influence the actions and attitudes of their followers. Effective leadership encompasses more than just advising others; it also entails leading by example through one's behavior, communication, and adherence to ethical principles. The factor above plays a pivotal role in facilitating organizational success, instigating transformative processes, and cultivating a conducive work atmosphere.

The correlation between leadership and an SDCA is intricately connected since proficient leaders frequently foster and assist their team members in assuming responsibility for their career advancement. Influential leaders establish a conducive atmosphere where individuals can take ownership of their career trajectories. According to Sosik and Cameron (2010), a leadership style characterized by supportiveness fosters an environment where individuals are motivated to take the initiative and be proactive in their professional development. Transformational leaders can inspire and encourage followers, establishing a climate conducive to personal growth and development. This phenomenon can foster a proactive and autonomous orientation toward professional progression (Judge & Piccolo, 2004). Leaders who actively participate in coaching and mentorship activities assume a crucial role in guiding the professional advancement of their employees. Leaders of this nature play a vital role in enabling individuals to engage in self-directed learning and personal development (Clutterbuck, 2014).

In brief, the impact of leadership on individuals' self-directed career views is substantial, as it encompasses the provision of support, inspiration, and guidance. Leaders that effectively promote personal growth, autonomy, and development play a significant role in cultivating a self-directed approach to career management within their team members. Therefore, the subsequent hypothesis was formulated:

H₂: SDCA has a positive impact on leadership

Leadership and EJS

Organizational research has extensively studied and established the correlation between leadership and employee work satisfaction. The degree of job satisfaction that employees experience directly depends on applying effective leadership strategies. Leaders who demonstrate helpful, positive, and polite behaviors tend to foster a more positive work climate. This phenomenon, in turn, leads to increased levels of employee job satisfaction (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Leaders who effectively communicate, offer constructive comments and actively engage employees in the decision-making process foster an environment characterized by transparency and empowerment. This phenomenon enhances employees' job happiness by promoting feelings of being appreciated and well-informed (Eisenbeiss, Van Knippenberg, & Boerner, 2008).

In essence, implementing leadership strategies significantly impacts how happy employees are at work. Leaders that demonstrate supportive, pleasant, communicative, and appreciative behaviors have been found to cultivate a work atmosphere that is more fulfilling, leading to increased levels of employee engagement and satisfaction. Therefore, the subsequent hypothesis was formulated:

H₃: Leadership has a positive impact on EJS

The mediating role of leadership

The present study posits that leadership is mediating between SDCA and EJS. This implies that leadership behaviors are an intermediary variable affecting the relationship between SDCA and employees' overall job happiness. But, how leadership is exercised can either improve or impede the connection between an individual's self-determination, competence, and relatedness and overall degree of pleasure with their job. This study investigates the progression of leader-member exchanges over a period of time, highlighting the influence of leadership and personality on the formation of these relationships, which subsequently affect the level of job satisfaction experienced by employees (Nahrgang, Morgeson, & Ilies, 2009).

Employee job satisfaction is defined as the general sense of happiness and positive emotional well-being that employees perceive within their work setting (Judge et al., 2001). The impact of leadership behaviors, such as supportive, transformative, or empowering leadership, on the relationship between an individual's self-directed career attitude and employee work satisfaction has been explored by Avolio, Gardner, Walumbwa, Luthans, and May (2004).

In brief, leadership plays a crucial role in mediating the relationship between employees' SDCA perspectives and their levels of job satisfaction. Implementing effective leadership techniques can cultivate a conducive climate that fosters and amplifies the favorable influence of self-directed career attitudes on employees' overall

satisfaction with their job and organizational encounters. Therefore, the subsequent hypothesis was formulated:

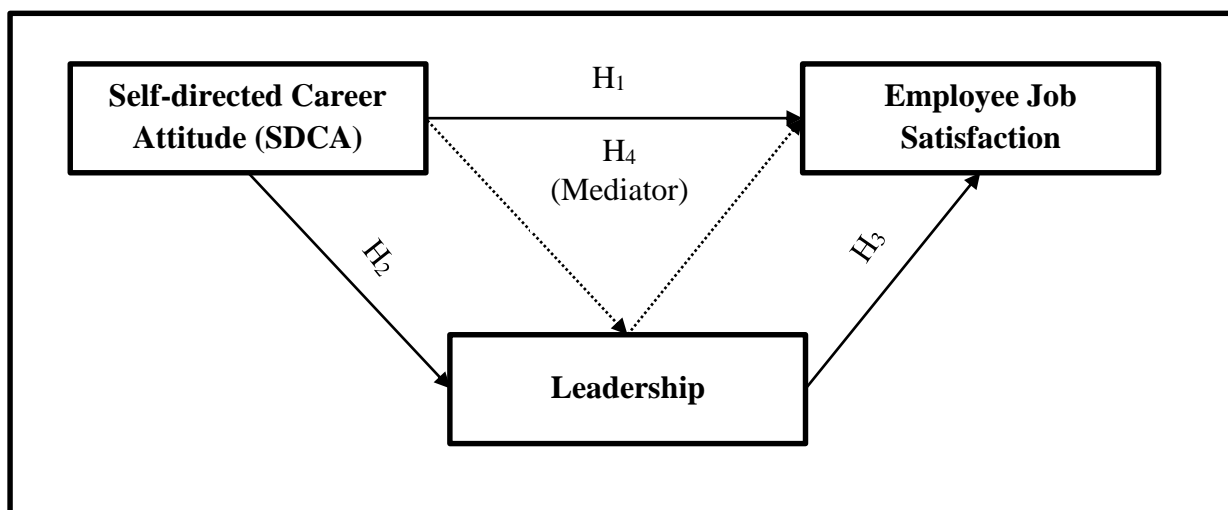**H4**: Leadership plays a mediating role between SDCA and EJS

Figure 1. Conceptual model

Methodology

Sampling

The research sample consists of individuals working in Pakistan's small and medium-sized firms (SMEs). The study's ideal sample size was determined to be 170 by utilizing G power analysis. In order to minimize the impact of sampling error, the researchers collected data from a sample of 250 people. The sample utilized in this research was determined to indicate the overall population, exhibiting a reliability coefficient of 0.90 and demonstrating consistent answers across all parameters

Data collection procedure

The data were gathered from participants using an online survey methodology. A total of 250 people were included in the study, from which 180 valid responses were collected. The research encompassed 110 male participants, accounting for 61% of the total, and 70 female participants, comprising 39% of the total. The study encompassed a sample size of 180 participants, who were classified into several age groups. Specifically, 22 individuals (12%) fell into the category of being under 25 years old; 91 individuals (51%) were between the ages of 26 and 35; 48 individuals (27%) were between the ages of 36 and 45; and 19 individuals (10%) were over the age of 45. This study investigated the distribution of career levels among several job roles: supervisor/worker, middle management, manager, and owner/CEO. The sample consisted of 10 persons (6%) in the supervisor/worker position, 122 individuals (68%) in middle management, 46 individuals (25%) in the manager position, and 2 individuals (1%) in the owner/CEO position. The participants possessed varying levels of educational attainment, including

basic/secondary (8), undergraduate (74), master's (96), and doctorate (2) degrees. The proportions corresponding to these degrees were 4%, 41%, 54%, and 1%, respectively. Table 1 displays demographic disparities and diverse population attributes.

Table 1. Respondents' characteristics

Respondents characteristics	Frequency	Percent
Gender		
Men	110	61
Women	70	39
Total	180	100
Age group		
Under 25	22	12
26-35	91	51
36-45	48	27
Over 45	19	10
Total	180	100
Education		
Secondary or Basic	8	4
Undergraduate	74	41
Masters	96	54
PhD	2	1
Total	180	100
Position		
Supervisor/ Worker	10	6
Middle Manager	122	68
Manager	46	25
Owner/ CEO	2	1
Total	180	100

Measures

Data on SDCA, leadership, and EJS were collected using standardized measures. This study's foundation for evaluating SDCA was the 8-item PCA scale that Briscoe, Hall, and DeMuth (2006) developed. The Likert scale employed in this research goes from 1 (limited) to 5 (great). Chaiprasit and Santidhiraku (2011) created the leadership scale, and it served as the basis for the data collection for this study. The participants' replies were evaluated utilizing a Likert scale of five points, where a score of 1 indicates "strongly disagree" and a score of 5 indicates "strongly agree." The four items that comprise the EJS scale adopted from the previous study of Butt, Chohan, Sheikh, and Iqbal (2019), based on Bamfo, Dogbe, and Mingle (2018) research, assess various aspects of EJS.

Research methods

This is quantitative research that collects data from respondents utilizing convenient random sampling on a closed-ended questionnaire on a five-point Likert scale. PLS-SEM was used in this study to test the theoretical model. PLS-SEM provides a statistically

accurate evaluation based on a bootstrapping procedure that produces standard errors for route coefficients (Iqbal et al., 2022; Preacher & Hayes, 2008). A measurement model and then a structural model were used in a two-step analysis of the research model (Hair, Black, Babin, Anderson, & Tatham, 2010; Henseler, Ringle, & Sinkovics, 2009).

Results and discussion

The researchers utilized partial least squares structural equation modeling (PLS-SEM) as the chosen method for conducting data analysis. According to Haenlein and Kaplan (2004), the authors assert that PLS-SEM is a more favorable approach compared to other conventional multivariate methods. PLS-SEM is a statistical technique that offers a robust analysis using a bootstrapping procedure. This approach generates standard errors for route coefficients, enabling researchers to assess the significance of their findings (Hair, Ringle, & Sarstedt, 2013; Nitzl, Roldan, & Cepeda, 2016; Preacher & Hayes, 2008). In the beginning, a number of assumptions were assessed, such as multicollinearity, normality, and common method variance (Tabachnick, Fidell, & Ullman, 2007). Hair, Black, Babin, and Anderson (2010) utilized a two-step methodology encompassing measurement and structural models to examine and interpret the collected data.

Measurement model assessment

In order to analyze the measurement model, it is imperative to evaluate each concept's reliability, internal consistency, convergent validity, and discriminant validity (Hair, Black, Babin, & Anderson, 2010; Henseler et al., 2009). PLS-SEM was employed in this study owing to its extensive recognition and adoption by researchers across several academic fields. The suitability of this study is attributed to its innovative approach to establishing criteria for rigorous data analysis (Hair, Risher, Sarstedt, & Ringle, 2019). The researchers employed factor loading to evaluate each individual item's dependability (Duarte & Raposo, 2010; Hair, Sarstedt, Ringle, & Mena, 2012; Hulland, 1999). Hair et al. (2019) state a minimum threshold of 0.7 or above is necessary. Table 2 illustrates that all of the outside loadings in our study meet the established criteria.

Table 2. Factor loadings and variance inflated factor

Construct	Item	Loading	VIF
Self-directed Career Attitude			
	SDCA1	0.792	2.097
	SDCA2	0.823	2.444
	SDCA3	0.842	3.639
	SDCA4	0.857	3.162
	SDCA5	0.838	2.679
	SDCA6	0.791	2.318
	SDCA7	0.798	2.837
	SDCA8	0.791	2.397
EJS			
	EJS1	0.834	1.689
	EJS2	0.828	2.112

Construct	Item	Loading	VIF
	EJS3	0.814	2.099
	EJS4	0.775	1.640
Leadership			
	L1	0.739	1.855
	L2	0.777	2.183
	L3	0.804	2.485
	L4	0.722	1.841
	L5	0.774	2.208
	L6	0.727	2.002
	L7	0.755	2.161
	L8	0.753	2.132
	L9	0.847	3.154
	L10	0.803	2.453
	L11	0.825	2.798

Note: VIF = Variance Inflated Factor

Internal consistency

Researchers frequently use composite reliability and Cronbach's alpha to determine the internal consistency of an instrument. The measurements commonly employ a minimum threshold of 0.70, as indicated by several studies (Bagozzi, Yi, & Phillips, 1991; Hair, Ringle, & Sarstedt, 2011; Hair et al., 2019; Joseph F Hair Jr, Hult, Ringle, & Sarstedt, 2016). The internal consistency and reliability of the structures are presented in Table 3, as reported by Bagozzi et al. (1991). The variance inflated factor (VIF) is a statistical measure used to evaluate the presence of method bias and collinearity effects. According to Ringle, Wende, and Becker (2015), it is generally advised to consider a threshold of 5 or below for the VIF, as indicated in Table 3.

Table 3. Mean, SD, CA, CR, and AVE

Constructs	Mean	SD	CA	CR	AVE
SDCA	3.15	0.88	0.929	0.941	0.667
EJS	3.16	0.89	0.831	0.886	0.661
Leadership	3.19	0.86	0.934	0.943	0.602

SD, standard deviation; CA, Cronbach alpha; CR, composite reliability; AVE, average variance extracted.

The convergent and discriminant validity assessment is conducted by utilizing the average variance extracted (AVE), as proposed by Fornell and Larcker (1981). Convergent validity is commonly established by a minimum threshold of 0.5 or above (Chin, 1998). The findings pertaining to convergent validity are presented in Table 3. Table 3 illustrates that all latent variables exhibited average variance extracted (AVE) values that exceeded the predetermined cutoff point. According to Table 4, the square root of the average variance extracted (AVE) was found to be greater than the correlations observed among the latent components. The current study demonstrates acceptable discriminant validity across all dimensions.

Table 4. Discriminant validity

Constructs	EJS	Leadership	SDCA
EJS	0.813		
Leadership	0.701	0.776	
SDCA	0.730	0.721	0.817

Structural model assessment

The R2 coefficient measures the predictive capacity of the model (Sarstedt, Ringle, Henseler, & Hair, 2014). Chin (1998) proposed specific thresholds for interpreting the R2 value, categorizing an R2 value of 0.60 as vital, 0.33 as moderate, and 0.19 as weak. Table 5 presents the R2 and Q2 values pertaining to the EJS and leadership variables. The coefficient of determination (R2) for the EJS variable is 0.596, whereas for the leadership variable, it is 0.519. The Q2 value obtained for EJS is 0.374, while the Q2 value for leadership is 0.299. The F2 values obtained for the leadership constructs (0.158) and SDCA (0.260) provide evidence supporting the validity of our study model.

Table 5. Predictive Relevance and Model Fit

Constructs	Q^2	R^2	F^2
EJS	0.374	0.596	
Leadership	0.299	0.519	0.158
SDCA			0.260

The research utilized the bootstrapping method, specifically employing 5,000 bootstrap samples, to evaluate the statistical significance of the hypothesis (Hair, Black, Babin, & Anderson, 2010; Hair et al., 2011; Joe F Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014; Henseler et al., 2009). The findings from Table 6 and Figure 2 offer empirical support for Hypothesis 1 (H1), which posits a significant and positive association between SDCA and EJS ($\beta = 0.467$, t = 7.527, p = 0.000). Therefore, the hypothesis H1 has been confirmed.

The study's results supported Hypothesis 2, as they demonstrated a statistically significant association between SDCA and leadership ($\beta = 0.721$, t = 21.118, p = 0.000). The coefficients $\beta = 0.365$, t = 5.738, and p = 0.000 support hypothesis 3. The study's findings supported the notion that leadership plays a mediating role in the association between SDCA and EJS. The analysis findings revealed a statistically significant result ($\beta = 0.263$, t = 5.800, p = 0.000), providing evidence supporting partial mediation, as Baron and Kenny (1986) proposed.

Table 6. Structural model

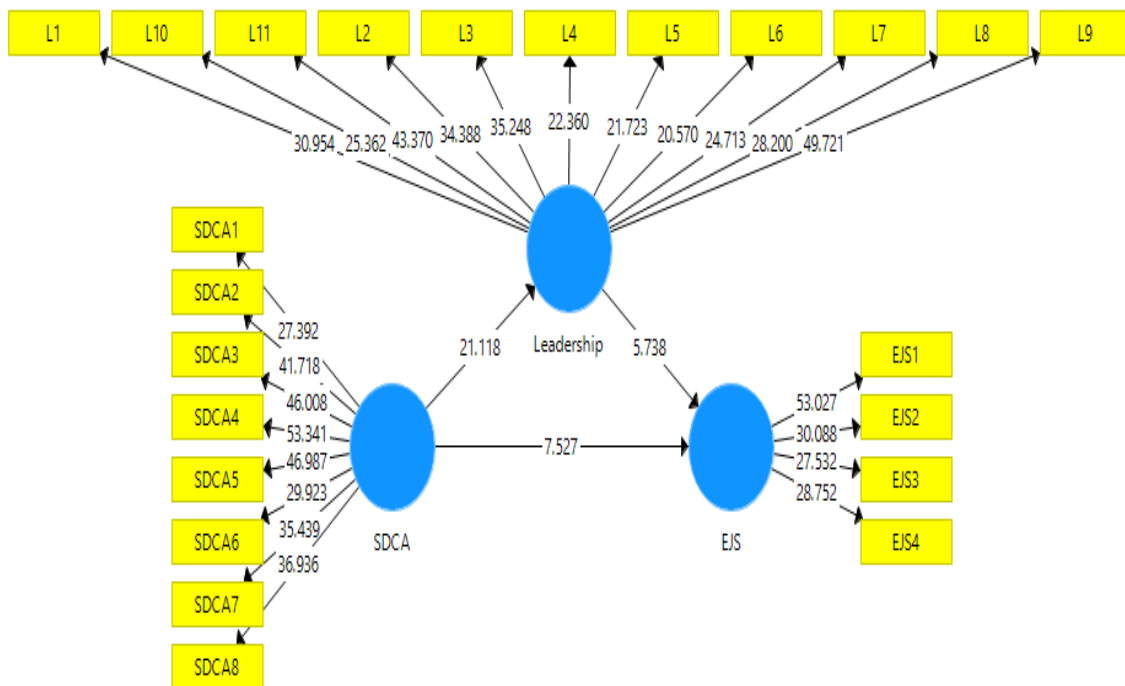| Hypothesis	Relationship	Beta	SE	t-Value	p-Value	Decision
H1	SDCA → EJS	0.467	0.062	7.527	0.000	Supported
H2	SDCA → Leadership	0.721	0.034	21.118	0.000	Supported
H3	Leadership → EJS	0.365	0.064	5.738	0.000	Supported
H4	SDCA→ Leadership → EJS	0.263	0.045	5.800	0.000	Supported

Figure 2. Hypothesis results

Discussion

The primary objective of this research was to examine the direct and indirect impacts of SDCA on EJS, with a specific focus on the mediating role of leadership. The findings suggest a robust correlation between SDCA and EJS. The results of this study support prior research that suggests PCA professionals yield advantages for both their employers and themselves (Iqbal et al., 2022). A positive correlation exists between a high SDCA, robust organizational identification, and a heightened sense of stewardship toward the organization's success. Furthermore, people diagnosed with SDCA may have a heightened inclination towards intrinsic motivators, such as the desire for personal growth and information acquisition.

Furthermore, the findings demonstrate a significant positive association between SDCA and leadership. When there is a high level of confidence between employees and their leaders, it is more probable that employees will have a sense of empowerment and confidence, enabling them to assume responsibility for their career advancement. Individuals possess a sense of assurance in their ability to obtain equitable treatment, recognition for their efforts, and opportunities for personal growth.

The findings indicate a significant association between leadership and EJS. There exists a positive correlation between leadership competence within an organization and the presence of psychological safety. Additionally, the perception that one's efforts will be acknowledged and appreciated is a contributing factor to overall job satisfaction. The

presence of job satisfaction has been found to influence individuals' loyalty towards their respective organizations positively.

Conclusion

In summary, the prevalence of disruption and disorder characterizes contemporary career trajectories, significantly influencing individuals and organizations. There has been a scarcity of scholarly research examining the potential connections between modern professional orientations and environmental justice movements. This study enhances the credibility of the individual and organizational settings of SDCA by including emerging nations for the first time. Organizations must give precedence to the advancement and impact of nascent vocations, both inside their internal processes and in a broader context. Organizations that emphasize emerging professions and the cultivation of strong leadership principles inside the organizational framework aim to promote equal job opportunities and social justice. Employees with a sense of satisfaction derived from their company are inclined to exhibit behaviors that extend beyond their prescribed job duties, making valuable contributions to the organization's overall success.

The relevance and benefits of employing an SDCA approach in the context of EJS are significant in contemporary society. The modern work environment is distinguished by swift technological progress, shifting job responsibilities, and dynamic industries. In the given context, people who exhibit an SDCA are more adept at effectively navigating the changes above through their proactive pursuit of learning opportunities and ability to adapt to novel obstacles. SDCA follows these principles, enabling individuals to assume responsibility for their trajectories, establish their objectives, and make choices consistent with their interests and ambitions. The presence of autonomy can result in increased levels of job satisfaction. In conclusion, it can be said that SDCA holds significant practicality in contemporary society, primarily owing to its unity with the evolving dynamics of the labor landscape, the imperative nature of ongoing education, and the intrinsic value placed on employee autonomy. It increases job satisfaction and enables employees to navigate their careers within a dynamic, efficient, and constantly expanding professional environment.

Organizations should prioritize the development of new professions in order to achieve both individual and organizational objectives. The present study enhances our understanding of the mechanisms and impacts of behavior on human resources, a crucial aspect for the successful management of careers and the formulation of suitable human resources policies (Baruch, 2014). Management must assess the impact of various work layouts and organizational assistance programs on employees' career perceptions.

Limitations and future work

The manuscript's focus on small and medium-sized firms (SMEs) represents a noteworthy constraint, perhaps restricting its applicability to a broader context. This study can also be analyzed within the context of pre- and post-COVID-19 conditions. In order to augment the outcomes of their studies, future researchers may consider using supplementary variables. This inquiry has the potential for expansion by examining many cultural elements.

Theoretical and practical implications

PCA has gained significant attention within Western society. However, it is essential to conduct an investigation of this notion throughout Eastern culture in order to evaluate any variations. This research investigates the current occupation and its impact on both organizations and individuals in a comprehensive manner. This study conducts a comprehensive analysis of many outcomes associated with the SDCA approach that has received less attention in prior research. Furthermore, it sheds light on supplementary variables that may prompt scholars to reassess and scrutinize PCA in light of these elements. This underscores the theoretical importance of the study.

This study aims to support human resource development (HRD) by providing insights into employees' viewpoints toward career progression in emerging career paradigms. The findings of this study have the potential to aid human resource managers in developing policies that align with current career trends. This, in turn, can improve the convenience and suitability of employment for both employees and employers in a fast-evolving environment. Implementing human resource policies that foster new career concepts is a successful strategy for mitigating employee turnover.

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Original Research

Discretionary Accruals-Earnings Management Across Industries: Implications for Financial Reporting Quality

Thakoor Sharma Geerawo[1]
Department of Accounting, Finance and Economics, University of Technology, Pointe-aux-Sables, Port Louis, Mauritius

Abstract

This study explores the variations in discretionary accruals' specific earnings management practices across different industries and their implications for financial reporting quality. Discretionary accruals are part of earnings management which affect the quality of financial reporting. These can distort financial statements and mislead stakeholders. Understanding how these practices differ among industries provides valuable insights for regulators, investors, and financial analysts. Yet, literature is overly scarce on specific industries which are most affected by discretionary accruals. Delving into information from a robust principles-based economy adopting IFRS, this paper addresses a research gap with a dataset spanning multiple industries over a multi-year period from 2013 to 2022. The Dechow, Kasznik, and Kothari models are employed to assess the extent of discretionary accruals within each industry. Based on winsorized mean and standard deviation, the industries which appeared most in the list of signed and absolute discretionary accruals were Energy and Financials followed closely by the Technology industry. Additionally, applying panel data regressions with multiple fixed effects, the size of a firm, equity ratio, asset turnover, and past profitability were significant in the models which influence discretionary accruals whereas the impact of liquidity was not statistically significant.

Keywords: Discretionary Accruals, Financial Reporting Quality, Fixed Effects Regressions, Industry differences, Non-parametric tests.

[1] *Corresponding author's Email: tgeerawo@gmail.com*

Introduction

Financial reporting relies on accurate, reliable and objective financial information to produce true and fair financial statements. Within these statements, accruals stand as a critical element, representing the managerial discretion in accounting choices (Jamadar et al., 2022). Accruals, while essential for matching and accruals concepts, also hold the potential for manipulation, thus impacting the quality of financial reporting. Understanding the dynamics of accruals across industries is essential to evaluate financial reporting quality and their broader implications on investors, creditors, and other stakeholders (Yuan et al., 2016). These accruals play a pivotal role in the financial reporting landscape, impacting not only the perception of a company's financial health but also the financial market stability.

As mentioned, total accruals represent a portion of accrual accounting that allows management to exercise judgment in recognise revenues and expenses for the accounting period, which might simply be necessary and unavoidable. These are termed as non-discretionary accruals (Altarawneh et al., 2022). On the other hand, the difference between total accruals and non-discretionary accruals is termed as discretionary accruals (Pham et al., 2019). While such discretion is essential for showing the economic substance of transactions, it also introduces an element of subjectivity into financial reporting. This subjectivity can lead to concerns about the quality and reliability of financial statements, as discretionary accruals can be manipulated to convey a more favourable financial picture than may truly exist (Jamadar et al., 2022). Therefore, studying discretionary accruals becomes a central focus in assessing financial reporting quality.

It is this interplay between discretion and transparency that defines the relevance of discretionary accruals in financial reporting. Discretionary accruals are not inherently negative; they can reflect legitimate managerial judgments (Pham et al., 2019). However, when used strategically to achieve certain financial objectives, they raise concerns about the integrity of financial statements. Uncovering the patterns and determinants of discretionary accruals in various industries is an endeavour that can shed light on the state of financial reporting practices today.

This study embarks on a journey to explore the world of discretionary accruals, with a particular focus on their industry-based variations in a principles-based economy adopting International Financial Reporting Standards (IFRS). The primary research objectives revolve around the identification of industries with the highest average discretionary accruals in signed and absolute terms, highest standard deviation and the exploration of factors contributing to this phenomenon. Thus, an analysis will delve into the relationship between critical financial performance metrics in common industry benchmarks to discretionary accruals.

Thus, this research aims to solve two important research questions which have not been studied extensively in literature:

Research Question 1: Which industries show the highest average and variance of Discretionary Accruals?

This initial research question serves as the cornerstone of this investigation. It is essential to identify industries where discretionary accruals play a significant role in influencing financial statements. To achieve this, three distinct models are employed, each offering a unique perspective on discretionary accrual measurement. By utilising the Dechow (1995), Kasznik (1999) and Kothari (2005) models, it is aimed to ensure a comprehensive evaluation, accounting for variations in measurement methods and accounting practices. The actual mean and variance of the discretionary accruals are studied as well as the mean and variance of the absolute discretionary accruals. The use of the Dechow and the Kothari models stems from the high citations over the years.

In the second research question, the purpose is to try to discover several financial metrics which may contribute or deter the discretionary accruals to help policy makers. Therefore, the second question is:

Research Question 2: Do traditional Industries' Financial Performance Metrics influence Discretionary Accruals?

This paper's attention is spun to the financial performance metrics which are utilised in all industries. Metrics such as the return on assets, asset turnover, equity ratio (inverse leverage) and current ratio, are fundamental indicators of profitability, efficiency, gearing and liquidity ratios which are commonly used in all industries. These metrics will highlight which financial metrics influence discretionary accruals, which could be used for probing significant disparities that could provide insights into the implications of elevated discretionary accruals on overall financial performance.

Previous literature has only seen a limited number of dated studies associated with industry classification and discretionary accruals, whereby the authors discussed the different classifications by different organisations (Hrazdil & Scott, 2013). This is not the motive here, as this study seeks to make a meaningful contribution to the broader understanding of the financial reporting landscape. The implications extend beyond academia, resonating with regulators, investors, and financial practitioners. In the subsequent sections, a summary of literature, research methodology, data analysis, empirical findings and critical discussion of results of this study are presented.

Literature Review

The research on industry differences in discretionary accruals is scarce. Few studies find that discretionary accruals differ across industries. Ikram (2011) decomposes discretionary accruals into firm-specific and industry-specific components, finding that the accruals anomaly is driven by firm-specific discretionary accruals. However, industry-specific discretionary accruals negatively impact investors' ability to properly price firm-specific discretionary accruals (Ikram, 2011). This suggests discretionary accruals are reported differently across industries.

While some evidence suggests that industry differences matter for discretionary accruals, the overall research is mixed as often industry classification has been utilised as

a dummy variable of fixed effects (Lin & Yen, 2022; Moscariello et al., 2020; Yuan et al., 2016). Industry classification may improve discretionary accruals estimation for some research questions and samples, but it does not appear to universally enhance discretionary accruals models or provide a complete solution to the complexities of estimating discretionary accruals. Hrazdil and Scott (2013) show that the Global Industry Classification Standard (GICS) results in the most reliable industry groupings for estimating discretionary accruals. Using GICS, the author finds that initial public offering firms with high discretionary accruals do not experience poor long-term stock performance, contrary to previous findings using other industry classification systems.

However, other studies find little evidence that industry classification or industry differences improves discretionary accruals estimation. Acar and Coskun (2020) compare various models for estimating discretionary accruals across countries and industries, finding little difference in explanatory power between models that control for industry and country versus those that do not. Furthermore, a higher number of industries is more precise in modelling than having a few selected industries (Acar & Coskun, 2020). A handful studies even suggest that industry classification can be problematic for discretionary accruals research. Suk Yoon et al. (2022) argues that the Jones model and industry approach, two common methods for estimating discretionary accruals, are theoretically and empirically flawed. The authors find that the cash flow approach outperforms the industry approach.

The papers provide mixed evidence on which industries are most affected by earnings management. Ujah and Brusa (2014) found that consumer staples and consumer cyclical industries had the highest earnings management. They further deduct that the level and scope of managed earnings vary depending on the industry a corporation is in. The most manipulated industries are consumer cyclical and consumer staples with financial leverage and cash flow volatility being significant, while the least influenced ones are transportation and utilities (Ujah & Brusa, 2014). In contrast, Sun (2009) found substantial earnings management across nine Australian industries, with the effects most pronounced in periphery sector firms and the dual economy. Furthermore, the highest earnings management was discovered in Metals & Mining and Information Technology (Sun, 2009).

However, Wasiuzzaman (2018) found that capital intensity, volatility and profitability—not industry type but items of industry characteristics—were the main drivers of earnings management in Malaysia. The author also mentions that profitability is an appropriate variable in the discretionary model as it influences the discretionary measure but leverage is interestingly not able to explain variations in the discretionary accruals. Tran (2022) however tests similar variables of industry characteristics and conclude that leverage is an important predictor of earnings management whereas firm size has negative effects on discretionary accruals.

Several studies have been done with industry focus and not on industry differences. For instance, Chang et al. (2019) had studied the tourism industry's discretionary accruals, where they found out that China's tourism industry's earnings management is lower from Taiwan. Similarly, Roy and Debnath (2015) find that service sector industries in India engage in income-decreasing earnings management, while non-service sector

industries do the opposite. Kim and Lee (2019) studied the retail industry and uncovered that in Korea, discretionary accruals is limited and suggest a higher quality financial report. The same idea was endorsed by Negkakis (2021) who posited that larger maritime companies have a higher quality reporting and less discretionary accruals in the shipping industry. There are numerous researches within a specific industry and the reasons for studying individual industries sourced from the motives of the research problem denoted by the authors, which ranged from political, economic, social and reducing misinformation on the market. Yet, these studies are important to glean the independent variables for the analysis.

Cudia and Dela Cruz (2018) also found evidence of earnings management across Philippine industrial firms, driven by leverage, cash flows and profitability. Also, leverage and cash flow from operations are both significantly and positively related whereas profitability was negatively related to discretionary accruals (Cudia & Dela Cruz, 2018). The equity ratio, also known as the equity to total assets ratio, is an important financial metric since it takes into account both the debt level and the proportional size of a company. A higher equity ratio means lower leverage (Budhathoki et al., 2020). This has an impact on the size of discretionary accruals since companies with higher leverage typically have more rigidity in managing their earnings due to debt covenants and institutional scrutiny although studies have seen mixed results (Awuye & Aubert, 2022; Hoang & Phung, 2019). It therefore plays a crucial role in research looking at the factors affecting discretionary accruals since it acts as a gauge of leverage and indirectly affects the degree of earnings manipulation.

In similar vein, discretionary accruals are closely related to asset turnover, a gauge of operational effectiveness. Asset turnover measures the ratio of sales to total assets and offers important insights into how well an organisation operates whereby traditionally a higher asset turnover suggests that the company is efficiently employing assets to generate revenue (Harebottle, 2016). Higher asset turnover ratios may indicate that a company is less likely to use aggressive discretionary accruals since an efficient asset utilisation is linked to better profitability and less aggressive earnings management in general (Harebottle, 2016; Jansen et al., 2012).

Additionally, prior research has found a significant correlation between a company's previous success and the presence of discretionary accruals, highlighting the ongoing significance of prior financial performance as a factor in profits management practises. According to this correlation, businesses that have historically been profitable may be less inclined to manipulate results through discretionary accruals although mixed results exist in literature (Cuong et al., 2018; Kapoor & Goel, 2017; Mohaghegh, 2015; Mascarenhas et al., 2010). In order to determine if liquidity impacts discretionary accruals, the current ratio is included as an independent variable. Researchers learn more about the interaction between liquidity and earnings manipulation by directly investigating the link between current ratio and discretionary accruals. A firm's short-term liquidity status affects its earnings management practices (Cuong et al., 2018).

A company's size may also influence the magnitude of earnings management. Size exhibits a complex relationship with earnings management, where larger organizations, as observed by Mai and Ngoc (2021), are often motivated to achieve specific financial

goals, resulting in a positive relationship. Conversely, as noted by Kurniawati and Panggabean (2020), size may exert a negative influence on earnings management when firms aim to smooth out profits for tax-related reasons. Thus, taken as a whole, these financial measures provide a framework for comprehending the factors influencing discretionary accruals in the field of accounting and finance research.

Methodology

To quantify earnings management (EM), a variety of techniques have been employed in previous research using discretionary accruals as proxy. Its alternative proxy is the real earnings management model which is not studied here as it can be more subjective due to its dependence on the adequacy of the indicators of real earnings management (Sitanggang et al., 2019). The different models either compare cash flow from operations against net income to estimate Discretionary Accruals or calculate modified accruals from working capital with adjustments of current assets, current liabilities, short term debts, cash and depreciation expense (Dechow et al., 1995; Suk Yoon et al., 2022). To describe normal accruals like those pertaining to working capital and depreciation, a regression analysis using a variety of variables is used. The research sample's accruals are predicted using proxies from the sample period. By examining the discrepancy between total accruals and anticipated normal accruals, unexpected accruals, or DA, are discovered. This approach may be used to examine the mechanisms behind EM since it is flexible and appropriate for both cross-sectional and time-series data. At start, however, the DA and Non-Discretionary Accruals are pooled together before the split. Thus:

$$TA_{i,t} = NDA_{i,t} + DA_{i,t} \tag{1}$$

Since Suk Yoon et al. (2022) argue that both the Jones model and industry approach are theoretically and empirically flawed and the cash flow approach outperforms the alternate approaches, the study will use the difference between the cash flow from operations and net income instead of the working capital adjustments method which were change in current assets, current liabilities, cash, short term debts and depreciation expense from Dechow (1995).

$$TA_{i,t} = CFO_{i,t} - NI_{i,t} \tag{2}$$

where $TA_{i,t}$ represents the total accruals of firm i in the current period (t); $NDA_{i,t}$ represents the non-discretionary accruals; $DA_{i,t}$ represents the discretionary accruals; $CFO_{i,t}$ denotes the cash flow from operating activities and $NI_{i,t}$ represents the profitability or net income.

The modified Jones model is a popular strategy that divides total accruals into discretionary accruals (DA) and non-discretionary accruals (NDA) (Dechow et al., 1995, 2012). TA is regressed on revenue change (ΔRev) and the amount of gross property, plant and equipment (PPE), which is scaled by lagged total assets (A_{t-1}) to mitigate potential issues arising from heteroskedasticity. In order to maintain statistical robustness, industry-years with fewer than six observations are removed from the analysis, as suggested in earlier research (Palacios-Manzano et al., 2021). The next step is to estimate the non-discretionary component of accruals (NDA) for each company in

the sample using the estimations for the regression parameters. This is achieved by compensating for the likelihood that businesses may have manipulated sales through changes in credit terms, as noted in the work of Dechow et al. (1995), by adjusting the change in sales for the change in accounts receivable (Rec). According to the recent study (Palacios-Manzano et al., 2021), this adjustment isolates non-discretionary accruals and gives us a more precise representation of a firm's underlying financial performance. Such modifications have been evaluated throughout time and determined to be especially dependable by a number of authors:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{(\Delta Rev_{i,t} - \Delta Rec_{i,t})}{A_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (3)$$

The aforementioned model is modified with the Kasznik model, which expands on the models suggested by Dechow et al. (1995), in order to increase the robustness of findings. In order to account for fluctuations in the focal company's net cash flow from operational operations, the Kasznik model adds an extra independent variable (Kasznik, 1999). This controls for variations occurring due to cash flow movements:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{(\Delta Rev_{i,t} - \Delta Rec_{i,t})}{A_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta CFO_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (4)$$

The Kothari et al. (2005) model, which contends that studies analysing accounting discretion without taking company performance into consideration may produce misleading results, is the third discretionary accruals detection model employed in this study. They use return on total assets (ROA) as a control variable in their model to solve this problem to depict the link between accounting discretion and other parameters. The model provides a more thorough study and improves comprehension of the factors that affect accounting discretion by incorporating ROA as a control (Kothari et al., 2005):

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{(\Delta Rev_{i,t} - \Delta Rec_{i,t})}{A_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \beta_3 \frac{ROA_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (5)$$

The corresponding measures of discretionary accruals (DA) are the residual estimates in the Dechow, Kasznik, and Kothari models for company i in period t. The relevance of DA, however, is dependent on both its direction and its strength. In order to determine the absolute value of the residuals from the prior equation, the magnitude of DA is therefore determined (Altarawneh et al., 2022; Gonçalves et al., 2021). Through this computation, the strength or intensity of DA is quantified, enabling a thorough assessment of its effects:

$$Abs(DA)_{i,t} = |\varepsilon_{i,t}| \qquad (6)$$

The absolute DA is a step to check for robustness and reliability of the models. Absolute DA may uncover implications which are not visible from signed DA (Gonçalves et al., 2021). Undoubtedly, a higher DA indicates poorer earnings quality.

This study departs from the models proposed by previous researchers (Al-Shattarat, 2021; Altarawneh et al., 2022) whereby this investigation focuses on the financial ratios that affect discretionary accruals such as size of firm, book value of equity over assets, past year's return on assets (profitability), asset turnover and current ratio. The model proposed for explaining discretionary accruals are derived from accounting ratios:

$$\text{Abs (DA)}_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 BVA_{i,t} + \beta_3 AT_{i,t} + \beta_4 CR_{i,t} + \beta_5 ROA_{i,t-1} + FE + \varepsilon_{i,t} \tag{7}$$

The multiple fixed effects (FE) regression method to limit potential endogeneity concerns (Chi & Gupta, 2009). To address disparities in earnings management, the natural logarithm of total assets (SIZE) is employed as a proxy for company size (D'Amato & Falivena, 2020). SIZE exhibits a complex relationship with earnings management, where larger organizations, as observed by Mai and Ngoc (2021) have a positive relationship with earnings management whereas according to Kurniawati and Panggabean (2020), size may exert a negative influence on earnings management. Also, the equity-to-assets ratio (BVA) acts as an indicator of leverage, and asset turnover measures revenue generation efficiency (Budhathoki et al., 2020; Harebottle, 2016). These factors offer insights into a company's performance and influence its approach to earnings management. Furthermore, liquidity, as represented by the Current Ratio (CR), might play a role in discretionary accruals, while past profitability, measured through lagged return on assets (ROA_{t-1}), may influence profit-stabilization strategies driven by stakeholder expectations (Cudia & Dela Cruz, 2018; Cuong et al., 2018).

Data and Sample Selection

The Refinitiv Eikon (previously Thomson Reuters) database was used to gather accounting and financial data. The sample data cover an 11-year period from 2012 to 2022, however the actual range of years is 10 because the DA models track changes in the values of many variables. The first step was to choose all UK-listed firms with readily available accounting and financial data. It is axiomatic that the UK boasts a robust stock market with reliable data and regulatory monitoring that has adopted IFRS. The IFRS foundation also has a headquarter in the UK (IFRS Foundation, 2023). The primary condition was that companies with fewer than six firm-year observations as well as businesses with inadequate data to generate accruals-based EM measures were eliminated. Variable data whose values fall below the 1st percentile and above the 99th percentile was then eliminated in order to remove the effects brought on by outliers. In this way, winsorization was applied to each variable under study, making the study more reliable (Jain et al., 2021; Ramalingegowda et al., 2021). Therefore, the final sample consists of 404 listed companies and 11 industries, corresponding to 3,835 firm-year observations.

Data Analysis and Results

The Kruskal-Wallis test, a non-parametric test, is used to assess whether groups of readings are significantly different in order to warrant a study. As such, the results from the Kruskal-Wallis test reveal that the p-value (0.00) that the difference is significant, the null hypothesis of no difference between the industries is rejected and the result thus

favour the alternate hypothesis of having a significant difference between the industries. Previous studies has also used one sample t-test (Sun, 2009). However, the one sample t-test being a parametric test, requires that the data is normally distributed, which is not really the case for discretionary accruals. This is the reason why this study applies the Kruskal-Wallis test. Further non-parametric tests, the Friedman and the Kendall test as utilised by researchers (Bao & Bao, 2004; Ogutu, 2010), were run and they confirm significant differences in discretionary accruals between industries (p-value 0.00).

Following confirmation of significant differences between industries, the discretionary accruals, residuals of the models presented in methodology, are reported in the signed normal format and in their absolute format as well. It is possible that an industry mean with signed discretionary accruals is nearly zero, but in fact there is much variation. Thus, the absolute discretionary accruals are essential to be studied in Table 1 along with the signed discretionary accruals.

Table 1. Mean of signed and absolute winsorized Discretionary Accruals

Industry	Mean of winsorized DA				Mean of winsorized absolute DA			
	Kothari Model	Dechow Model	Kasznik Model	Average	Kothari Model	Dechow Model	Kasznik Model	Average
Education	-0.031	-0.019	0.008	-0.014	0.067	0.084	0.098	0.083
Basic Materials	-0.021	-0.088	-0.077	-0.062	0.061	0.113	0.108	0.094
C. Cyclicals	-0.026	-0.017	0.005	-0.013	0.074	0.101	0.094	0.089
C. Non-Cyclicals	0.006	-0.008	-0.015	-0.006	0.041	0.081	0.083	0.068
Energy	0.014	-0.109	-0.134	-0.076	0.077	0.149	0.159	0.128
Financials	0.007	0.143	0.159	0.103	0.106	0.155	0.160	0.140
Healthcare	-0.003	0.004	0.006	0.002	0.078	0.073	0.084	0.078
Industrials	-0.007	0.003	0.009	0.002	0.062	0.083	0.083	0.076
Real Estate	0.050	0.131	0.096	0.092	0.062	0.152	0.120	0.111
Technology	-0.061	0.003	0.062	0.001	0.095	0.083	0.109	0.096
Utilities	0.031	-0.059	-0.091	-0.040	0.036	0.093	0.121	0.083

Particularly noteworthy are the industries of Basic Materials, Energy, Financials and Real Estate which have emerged at the top of winsorized discretionary accruals whereas Energy, Financials, Real Estate and Technology emerged from winsorized absolute discretionary accruals, demonstrating their propensity for aggressive earnings management tactics. It is noted that Technology industry would not have been listed if the absolute discretionary accruals value not used. This variation would be best analysed in Table 2, using the standard deviation of each model and the average of the models.

Table 2. Standard Deviation of winsorized signed and absolute Discretionary Accruals

Industry	Std Dev of winsorized DA				Std Dev of winsorized absolute DA			
	Kothari Model	Dechow Model	Kasznik Model	Average	Kothari Model	Dechow Model	Kasznik Model	Average
Education	0.074	0.102	0.127	0.101	0.037	0.053	0.074	0.054
Basic Materials	0.080	0.115	0.116	0.104	0.056	0.091	0.088	0.079
C. Cyclicals	0.100	0.130	0.121	0.117	0.072	0.084	0.077	0.078
C. Non-Cyclicals	0.054	0.103	0.107	0.088	0.036	0.064	0.068	0.056
Energy	0.111	0.150	0.154	0.138	0.081	0.111	0.128	0.107
Financials	0.133	0.106	0.087	0.109	0.081	0.088	0.085	0.084
Healthcare	0.108	0.096	0.112	0.105	0.075	0.063	0.074	0.071
Industrials	0.084	0.107	0.106	0.099	0.057	0.068	0.066	0.064
Real Estate	0.047	0.110	0.103	0.087	0.028	0.078	0.074	0.060
Technology	0.122	0.111	0.126	0.120	0.098	0.074	0.089	0.087
Utilities	0.032	0.093	0.099	0.075	0.027	0.058	0.060	0.048

The sector of Academic & Educational Services clearly exhibits moderate variation across all three models in the examination of discretionary accruals. This implies that it may be as a result of variables like the various income sources and consistent accounting techniques used by educational institutions. The Basic Materials sector, in comparison, exhibits a modest amount of discretionary accrual variability but in absolute DA is among the top four. Both the Consumer Cyclicals and Consumer Non-Cyclicals industries show moderate to high variability in discretionary accruals in contrast to Ujah and Brusa (2014), reflecting the diverse nature of the enterprises in these industries. Companies operating in these areas could use different accounting procedures, which could result in bigger standard deviations. With particularly large standard deviations in discretionary accruals across all three models, the energy industry stands out and is a reflection of the complex and unstable accounting environment linked to variables like shifting commodity prices and regulatory changes. Contrarily, the Financials sector has low discretionary accruals variability based on one model but a noticeably greater standard deviation based on average of the 3 models, emphasising the possibility of unique features of financial reporting practises within this sector. While the Technology sector shows higher variability similar to Sun (2009), it is most likely a result of the rapid pace of technological change and its effects on various revenue recognition methods and accounting treatments. Healthcare, Industrials, and Real Estate sectors show moderate variability in discretionary accruals, indicating a relatively consistent pattern of financial reporting practises. As a result of its low to moderate fluctuation, the utilities sector, in contrast, suggests that the financial reporting environment in this sector is steady and constant.

Therefore, the standard deviation of the industries of Energy, Technology, Consumer cyclicals and Financials were largest, and the variance of the absolute discretionary accruals winsorized were greatest for Energy, Technology, Financials, and Basic Materials. This brings us to the subset of common connection among the top four of each

category, which thus are Energy and Financials followed closely by the Technology industry. The findings are novel to literature as Sun (2009) corroborated to only the findings of Technology industry. In order to assess the financial metrics effects on each discretionary accruals model, it is important to understand the impact of broad accounting ratios used as benchmarks in every industry. Table 3 subsequently shows the variables size, past profitability, leverage, efficiency and liquidity on discretionary accruals.

Table 3. Profitability, Leverage, Efficiency and Liquidity on Abs. Discretionary Accruals

	Dechow model	Kothari model	Kasznik model
SIZE	-0.0108***[2]	-0.0103***	-0.00826***
	(-3.37)	(-4.91)	(-3.42)
BVA	-0.0480***	-0.0405***	-0.0570***
	(-3.58)	(-4.63)	(-5.64)
CR	0.0009	(0.0004)	0.0012
	(1.01)	(-0.62)	(1.74)
AT	-0.0228***	-0.00898*	-0.0103*
	(-4.20)	(-2.53)	(-2.52)
$ROA_{i,t-1}$	0.0415*	0.0389***	0.0134
	(2.39)	(3.43)	(1.03)
Cons.	0.364***	0.291***	0.259***
	(5.31)	(6.50)	(5.01)
N	3,835	3,835	3,835
R^2	0.481	0.376	0.330
R^2_{adj}	0.419	0.300	0.249
F	6.677	9.532	8.524
p-value	0.000	0.000	0.000
AIC	(10,755)	(14,016)	(12,920)
BIC	(10,717)	(13,978)	(12,882)
Industry FE	Yes	Yes	Yes
Company FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

The Dechow model in Table 3 presents insights into the relationship between several key financial variables and absolute discretionary accruals. The size of an organisation is negatively related to discretionary accruals with a coefficient of 0.01. Although small, the coefficient is significant to 1% significance level. The Equity to Assets ratio (BVA) or inverse leverage is also negatively associated with the magnitude of discretionary accruals significant to the 1% significance level, showing that as leverage increases, the propensity to manage earnings increases. Asset turnover (AT) exhibit significant negative coefficients, implying that the greater asset turnover is associated with lower discretionary accruals. This suggests that companies with a more efficient asset utilization tend to have lower discretionary accruals, signifying more conservative financial reporting practices. The current ratio (CR) coefficient is relatively small and is

[2] * p<0.05, ** p<0.01, *** p<0.001; t statistics in parentheses

insignificant as per the p-value. Interestingly, lagged return on assets (ROAi,t-1) shows a positive coefficient, indicating that higher past profitability is linked to higher current discretionary accruals which is in line with Wasiuzzaman (2018) who state that "profitability influences the discretionary measure". The Dechow model maintains a quite a good fit with the data with a R-square of 48% indicating that variations in independent variables explain the variation of discretionary accruals (Kleiber & Zeileis, 2008).

The Kothari model aligns with the Dechow model in terms of the interpretation of size being negatively associated with discretionary accruals whereas leverage positively related to accruals earnings management which are in line with Tran (2022). This implies that when equity to assets ratio increases (leverage decreases), pressure to manage earnings decrease. On the other hand, the current ratio (CR) still has an insignificant take on the model. Similar to the Dechow model, past profitability reveals a positive coefficient, implying that a high profit last period is linked with higher current discretionary accruals probably to meet the expectations created by the past profits. The slight difference in the coefficient of asset turnover (AT) compared to the Dechow model does not preclude the significant negative relationship between AT and discretionary accruals. The F-statistic of the Kothari model combined with its significant p-value shows the model is significant and the lower AIC/BIC values shows a better fit with the data (Kleiber & Zeileis, 2008).

The Kasznik model aligns with the Dechow and Kothari models regarding the associations between Size and Equity over Assets (BVA) to discretionary accruals although there are slight differences. The asset turnover with the Kasznik model shows a significant negative coefficient in line with Jansen et al. (2012) and Harebottle (2016), indicating that higher asset turnover is associated with lower discretionary accruals. Current ratio was still insignificant with the Kasznik model and the main divergence from the other models was that past profitability was surprisingly also not significant. However, the Kasznik model did not have a high predictive power as denoted by the R-squared. As such, the highly cited Dechow and Kothari models take precedence in the analysis.

Discussion of Results

Research on the difference of discretionary accruals across industries is scarce. This paper agrees with Ikram (2011) where industry specific discretionary would influence the investor's ability of decision making, following evidence of non-parametric tests confirming the difference of discretionary accruals among industries. Analysis of the mean and standard deviation of signed and unsigned variances showed that consumer cyclical industries did not appear among the highest earnings management contrasting to Ujah and Brusa (2014). On the other hand, the Energy industry appeared as one of the industries with highest discretionary accruals, which is novel to literature and could be the results of volatility of prices, capital investments depreciation, environmental regulations amongst others. The results also showed that the technological industry had common high discretionary accruals corroborating with Sun (2009) with possible explanations relating to its dynamic business environment and modern organisational structures. Furthermore, the Financials industry was also reported to be among the high

discretionary accruals industries despite Hrazdil and Scott (2013) mentions that Financials industry is a regulated industry. However, potential explanations could include the unique nature of the financials industry including complex financial instruments measurement and presentation amongst others.

Size is negatively related to earnings management in concurrence with Tran (2022) and Mai and Ngoc (2021). This might be explained by the increased scrutiny by various committees of a larger firm compared to a smaller firm. This evidence contrasts the findings of Kurniawati and Panggabean (2020) due to potentially the country studied. Asset turnover is negatively related to discretionary accruals, relating to efficiency of using assets to generate revenue being a deterrent to discretionary accruals which is consistent with past research (Harebottle, 2016; Jansen et al., 2012). A high asset turnover means that a company is performing well and thus, managers do not feel the need to manage earnings. Current Ratio unanimously remains insignificant contrary to the findings of Cuong et al. (2018). Past profitability increases the pressure to manage earnings in the current period, thus there is a positive correlation between past profitability and current discretionary accruals. This is similar to the findings of Mohaghegh (2015), nonetheless Kapoor and Goel (2017) mention that managers of a profit-making business do not have incentive to manage earnings. Yet, this paper argues that past profitability generates expectation and thus is positively related to current discretionary accruals in this study. Furthermore, the higher the equity ratio (lower leverage), the lower the magnitude of discretionary accruals tend to be which is in line with Hoang and Phung (2019) whereby leverage was positively related to discretionary accruals but contrary to Awuye and Aubert (2022). This paper's findings are consistent with the debt covenant theory indicates that with higher leverage, there is a tighter scrutiny from all fronts. However, there is a trade-off between leverage and managing discretionary accruals, and it is seen that higher leverage could mean debt covenant violations or bankruptcy risk and thus generates pressure on management in agreement with Lazzem and Jilani (2018).

Robustness Tests

Following criticism of other approaches, the cash flow approach as concluded by Suk Yoon et al. (2022) was used in this study. The different models highlight the sensitivity of discretionary accruals to the chosen model specifications and underlying assumptions when using the signed discretionary accruals since companies may use smoothing techniques when profits are uneven or when profits are low, management may decrease discretionary accruals, thereby inflating earnings (Wasiuzzaman, 2018). It is essential to recognise that each model may emphasize different aspects of financial reporting behaviour, leading to differences in coefficients and model performance. In order to be robust in terms of sensitivity analysis, the study adopted a battery of non-parametric tests, studied both the signed and unsigned discretionary accruals and in later stages, preferred the use of absolute discretionary accruals in fixed effects regressions to mitigate sensitivity concerns when uncovering potential relationships. Thus, each variable showed the propensity of a probable increase in discretionary accruals with the increase in one unit of the variables. In order to control for other differences such as economy, industry, year differences, the fixed effects regression models were employed which have been adopted in literature (Alves, 2021; Khuong & Anh, 2022). The removal of the

insignificant variable (CR) did not influence the significance of the results of the remaining equation.

Implications for Investors and Analysts

For investors and financial analysts, understanding the standard deviation of discretionary accruals within an industry is crucial. High variability may indicate that financial statements in that industry are less predictable and may require deeper scrutiny. Conversely, low variability suggests a more stable and consistent financial reporting environment, which can be reassuring to stakeholders. It is essential to consider the specific characteristics of each industry when interpreting these standard deviations. Factors like industry regulations, business models, and market dynamics can all influence the variability of discretionary accruals. As such, understanding financial metrics from industry benchmarks such as asset turnover, size and leverage may provide for essential information for investors. Consequently, a differentiated approach to analysing discretionary accruals is essential for making informed investment and financial decisions. This paper provides thus provides a framework to identify 'risky' discretionary accruals' industries and to peruse industry ratios prior to taking decisions.

Conclusion

This research had a principal aim of understanding the intricate web of accruals earnings management practices that are unique to different industries and to identify the financial metrics in common industry benchmarks which influence discretionary accruals. This was undertaken in an effort to highlight how these practises eventually affect the accuracy and reliability of financial statements, which might have significant repercussions. Discretionary accruals can mask the real financial picture when used improperly, confusing stakeholders.

Discretionary accruals were examined for a multi-year dataset from 2013 to 2022. The dataset, which originated from a principles-based economy (UK) and covering a wide range of economic sectors, offered a solid framework for this investigation. This study included the well cited Dechow, Kothari and Kasznik models of discretionary accruals. The battery of non-parametric tests exposed the differences between industries. A set of statistical tests around mean and standard deviation of signed and unsigned discretionary accruals was undertaken. The industries which appeared to be in most of the lists were Energy, Financials and followed closely by Technology.

The fundamental causes of these sector-specific differences in discretionary accruals practices are also explored in the study. Critical indicators such as size of firm, book value of equity over assets, past profitability, asset turnover have all been carefully evaluated and were significant in the model. However, liquidity appeared to have little impact on discretionary accruals. Furthermore, robustness tests were carried out following the fixed effects regressions to help with sensitivity analyses.

The information uncovered by this research is essential for regulators, investors, and financial analysts. The users of financial statements would have a thorough awareness of

the variations in discretionary accruals that are specific to each industry, enabling them to develop appropriate tools and policies to make better informed decisions.

Limitations of study and Future Research

The financial environment is dynamic, and this paper's analysis is based on data of only one country. However, the author utilised data up to year 2022 and is deemed to be timely. Future investigations could research the particular drivers and effects of discretionary accruals practices for a wider range of countries. Furthermore, an interesting area for future study is the effect of individual external events, such as legislative changes or economic vicissitudes, on discretionary accruals. These were robustly controlled with year, industry and firm fixed effects regressions in this study. Therefore, future studies could adopt a different methodology to understand external events.

Abbreviations (Nomenclature)

β_i (1,2,3 ... k)	Regression coefficients
IFRS	International Financial Reporting Standard
Eq.	Equation
F	Fisher test
H_0	Null hypothesis
K	Number of explanatory variables included in the model
N	Sample size
p-value	Probability value
R^2	Coefficient of determination
$R^2{}_{adj}$	Adjusted coefficient of determination

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Original Research

Effect of CEO Characteristics and Financial Performance of Listed Consumer Goods Firms in Nigeria

Mohammed Bukar Kauji[1] iD
Department of Accounting, Ramat Polytechnic, Maiduguri, Nigeria

Shehu Hassan Usman iD, Saidu Adamu iD
Department of Accounting, Federal University of Kashere, Gombe, Nigeria

Abstract

The study examines the effect of chief executive officers (CEO) Characteristics on the financial performance of listed fast moving consumer goods firms in Nigeria from 2013 to 2022. The study used a sample size of thirteen (13). The dependent variable was measured by ROA and ROE. The study engaged a secondary source of data which was obtained from the annual reports of the firms and NEG website. The results from the Driscoll-Kraay robust fixed effect regression analysis proved that CEO financial expertise and tenure have a positive and significant effect on the financial performance of the listed while CEO Political connection has a positive and insignificant effect on financial performance. The study concludes that firms with CEOs who are financial experts outperform firms without expertise in terms of financial performance in listed consumer goods firms in Nigeria. The study recommends among others that the board of the consumer goods firms when hiring CEOs should give significant weight to candidates' financial expertise. The recruitment process should assess the candidates' financial acumen, educational background, and relevant experience.

Keywords: CEO Financial Expertise, CEO Tenure, CEO Political connection, Financial Performance.

[1] *Corresponding author's Email: kaujiramat@gmail.com*

Introduction

Leadership is thought to be essential to the development and progress of an oganisation (Wood & Vilkinas, 2005). The role of top management, especially CEOs, in guiding the organisation as a whole is essential in today's dynamic corporate world, which is characterised by increased market competitions, technological changes, volatility in inflation and interest rates, fluctuating exchange rates, changes in tax laws, and environmental issues, among others (Van Horne & Wachowicz, 2015). According to Canace et al. (2020), the CEO is the executive in charge of the company. The CEO is given the responsibility of managing the overall operations of the business, making important strategic decisions, and determining how effectively the organisation is using its resources (Lindeman, 2019). As a result, "the lever of power is uniquely concentrated in the hands of the CEO" (Nadler & Heilbern 1998, as cited in You et al. 2020), and some would even argue that the CEO has an obligation to choose the firm's course (Hambrick & Mason, 1984).

CEOs are essential to a company's success because they are in charge of making strategic choices that have a big impact on the business's financial performance (Carpenter, Geletkanycz, & Sanders, 2004). There is thus increased interest in figuring out how CEO traits like financial expertise, tenure, and political connections affect financial performance (Weichao et al. 2021; Liu & Yu, 2018; Kokeno & Muturi, 2016).The importance of the CEO's attributes is crucial since they have a bigger impact on the performance of the company (Bandiera, et al., 2020). As the executive management contributes to generating growth and manages the corporate problems to overcome the issue posed to a firm, the performance of the CEO is primarily responsible for the success or failure of the firm (Ason et al., 2021). Due in large part to the actions of the top management, which is in charge of making choices for the company, the recent global financial crisis has brought up the question of how effective corporate governance practices are. The importance of the top management position has increased as top executives have become more concerned with the company's

One of the biggest economic sectors in Nigeria is consumer goods, which made a significant contribution to GDP.   However, a variety of reasons, including the COVID-19 pandemic and technological, supply chain and distribution, power, and security challenges, are believed to be having an impact on the industry and are expected to result in decreased profitability in 2021 (Nan., 2022). According to a study, Nestle, Nigerian Breweries, Dangote Sugar, Cadbury, Unilever, and Nascon collectively earned N81.9 billion in profit in 2021, down from N83.9 billion in 2020 (Nan., 2022).

According to studies, the financial expertise of the CEO in particular can significantly affect financial performance. CEOs who have earned degrees in accounting or finance typically outperform those without them (Kokeno & Muturi, 2016). Additionally, the CEO's tenure is quite important; CEOs that have been with the firm for a long time and have a strong understanding of the market, suppliers, and clients tend to perform better (Liu & Zhang, 2018). Furthermore, CEOs with political ties may have access to beneficial materials and information that might help their businesses, such as government contracts, financial incentives, and regulatory favours (Faccio, Masulis, & McConnell, 2006).

Political connections, however, can also be a double-edged sword because they may result in cronyism claims and the possibility of reputational harm (Sharma, Cheng, & Leung, 2020). Additionally, the type of political connections might affect how well a company does. While connections to low-level authorities may have minimal impact, CEOs with ties to high-ranking officials or political parties may be better positioned to influence legislation and regulations in favour of their companies (Fan, Wong, & Zhang, 2007).

Despite considerable focus on how a CEO's features affect financial performance, it is still unclear which particular qualities are most strongly linked to successful outcomes. While some research have identified a substantial correlation between certain personality qualities or demographic variables, such as financial expertise, tenure, and political connection, and higher financial performance, other studies have found no such correlation. The association between a CEO's political connections and corporate performance has generated conflicting findings in studies. According to some studies (Wang , Xu , & Zhang, 2018), CEOs who are politically connected tend to do better than their unconnected peers. However, other studies (Gao, Huang, & Yang, 2019) found no evidence of a relationship. As a result, this study aims to examine how CEO characteristics affect the financial performance of listed consumer goods companies in Nigeria.

Literature Review

Chief Executive Officer (CEO)

Setting organisational plans, goals, objectives, organisational structures, and performance standards is under the purview of the CEO. As a result, in any organisational structure, the CEO serves as the source of the main idea and framework for the company (Ojeka, et al., 2017). Due to their legitimate hierarchical position and dedication to the organisation, CEOs are typically the most powerful members of the corporate elite (Brown & Sarma, 2007). They are often especially dedicated to the status quo in order to maintain the effectiveness of the current strategy and the persistence of certain leadership actions. In the context of organisations, a CEO's commitment to the organisation can be seen as a moral requirement that demonstrates how strongly they identify with and are involved in the organisation (Herri , Handika , & Yulihasri, 2017). The CEO is ultimately responsible for determining, sustaining, and attaining an organization's strategic path (Conte, 2018). The CEO oversees the coordination of various organisational tasks, works on developing a reputational risk management strategy, keeps track of potential external risks, and manages reputation under pressure (Economist Intelligence Unit, 2005).

Empirical Review

CEO Financial Expertise and Financial Performance

CEO financial expert CEOs as seen as individuals who hold an accounting qualification or have job experience as an auditor, chief financial officer (CFO), controller, or other accounting-related positions (Schmidtova, 2015). Kokeno and Muturi (2016) look at how CEO education affects an organization's success. Companies listed at the Nairobi market in Kenya for a seven-year period, from 2008 to 2014, make up the

study sample. The method of multiple regression analysis is used in the study. The results of the study showed that CEO education had a beneficial impact on business performance. They found that a CEO with a thorough understanding of the company will assist the team perform better. The study, however, is foreign-focused and seven years behind schedule.

Also, Schmidtova (2015) looks at how CEO experience affects stock market performance. The research sample includes 14828 CEO year observations during an eight-year period, from 2007 to 2014, and 2226 CEOs. Regression analysis was employed in this study. Firms with financial experts as CEOs as opposed to non-financial experts were used as proxies for CEO expertise, while gross return and intra-year volatility were used to gauge stock market performance. The study's findings showed that CEOs with financial expertise can better manage operational performance and will withstand a stronger market return bounce. The study came to the conclusion that there are notable differences in the development and magnitude of stock market returns as well as corporate policies when comparing a CEO financial specialist with a non-expert. The study is international in focus and is seven years behind.

The impact of the CEO's financial knowledge on the company's stock performance is evaluated by Vorobyeva (2014). The study sampled 118 publicly traded companies in the UK over a ten-year period from 2002 to 2012. Panel data and ordinary least squares regression are used in the study. The stock performance is determined by cumulative stock return, whereas the CEO expertise is determined by whether the CEO is an accountant or a finance professor. The study discovered that a CEO's financial expertise has a negative impact on stock performance and that a CEO with a financial experience appears to lower stock return. This study had a foreign focus, which would have led to different conclusions for a developing country like Nigeria.

CEO Tenure and Financial Performance

According to Fujianti (2018), the duration of a person's leadership role in an organisation is referred to as their CEO tenure. According to Herri et al. (2017), organisation tenure is particularly recognised as a sign of experience in a specific job inside an organisation. There is conflicting information regarding the impact of a CEO's term on business performance.

Leong, Chan, and Yao (2018) look into the impact of the CEO's tenure on stock return performance. The study sampled 9996 distinct companies from the COMPUSTAT database during a 25-year span, from 1992 to 2016. To assess the performance of stock returns, additional monthly portfolio returns were used. The paper uses a fama-macbeth framework and formal regression. The study discovered that longer CEO tenure had a direct impact on firm stock returns due to increased company-specific expertise and experience. The study, however, had a global focus, and performance was assessed using monthly portfolio returns.

Nguyen, et al.(2017) explored how CEO tenure affects stock performance. utilising a sample of 2702 observations from Australian businesses over a ten-year period, from 2001 to 2011. The market-value ratio of equity plus total liabilities to asset book value was used in the study to gauge stock performance. This influence does not differ between

advanced and growth organisations, according to the study, which also identified a negative correlation between CEO tenure and lower company performance. The ratio of market value to book value is employed here as a performance indicator, which is different from the performance indicator used in this study. The study is also seven (7) years behind and has a foreign focus.

Liu and Yu (2018) investigated the relationship between the CEO's service history and atypical returns. The performance of CEOs with longer and shorter tenures is compared in the study using a two sample t-test and multivariate regression. The Wharton research data services were used to derive 644,434 stock returns for the twenty-seven (27) years between 1992 and 2018. The study measures abnormal returns using the Fama French and Carhart four-factor model. According to the analysis, it is significant and feasible to generate abnormal returns with a portfolio that holds long positions in companies with long-serving CEOs and short positions in companies with short-serving CEOs. The study's findings suggest that tenure has a bigger impact on performance in small enterprises than in large organisations, according to the long-short strategy. However, the study had a global focus, and abnormal returns were used to gauge performance.

Diks (2016) investigates how CEO tenure affects business performance. 483 CEOs of S&P 500 businesses throughout a fifteen-year period, from 2000 to 2015, were included in the analysis. Results from a linear regression and a fixed effect model showed that the length of a CEO's tenure has a significant impact on the value of the company. The study comes to the conclusion that CEOs with longer tenures have more decision-making authority, which directly affects their stock performance. The study, however, is foreign-focused and cannot be generalised to all countries. The study also used Tobin Q, a unique method that does not provide a better picture of stock performance, to measure business performance.

CEO Political Connection and Financial Performance

The impact of political ties on company financial success in Tunisia was studied by EL Ammari (2022) using a sample of 304 non-financial Tunisian listed companies were observed between 2012 and 2019. The study discovered that political connections have a detrimental impact on the financial success of corporations, according to the study's use of multivariate regression analyses. They came to the conclusion that businesses with political ties can experience reputational hazards and legal problems that hurt their bottom line. However, this study was conducted outside Nigeria and cannot be used.

The research by Junus et al. (2022) looks at how the performance of a corporation is impacted by politically connected independent commissioners and independent directors. From 2010 to 2017, every listed company on the Indonesia Stock Exchange (IDX) was included in the sample. To address the endogeneity issue in this study, we use Heckman's 2SLS test and the ordinary least squares (OLS) regression model. They found that independent commissioners with political clout had no impact on the company's performance.

Theoretical Framework

The study was underpinned by two theories. The upper Echelon and resource dependency theories.

The Upper Echelons Theory

According to Hambrick and Mason (1984), the upper echelons hypothesis states that the CEO and his or her chosen team are in charge of developing and implementing an organization's strategy. Members of the organization's highest echelons always evaluate strategy and interpret strategic alternatives through the lens of their individual experiences, values, personalities, and other comparable human variables.

According to this idea, Hambrick and Mason (1984) contend that the CEO's pursuit of a company's organisational orientation and strategic vision is impacted or directed by his or her conception of the universe. They contend that CEO orientation, which depends on a person's experience, education, functional background, and other demographic criteria, has a crucial influence in how they perceive issues and the conceptual framework they use when making decisions. According to the theory's premise, a long-term CEO would tend to favour the status quo and be hesitant to put change management tactics into practise (Nielsen, 2010).

The theory contends that top management demographics contribute to organisational performance and a strategic choice in part. It also contends that managerial decisions are not always driven by rational considerations and are frequently influenced by the inherent limitations of executives as people (Mandala, 2017). According to the upper echelons idea, organisations with senior executives who have received management training and a higher degree of education may be "administratively more dynamic" (Hambrick and Mason 1984). According to studies on upper echelons, education level is a key characteristic of these individuals that can be utilised to predict strategic executive behaviour (Hambrick & Mason,1984).

A key event in the field of behavioural finance is clarified by the upper echelons theory. According to the theory (Hambrick & Mason, 1984), the CEO's traits or qualities determine the outcomes of the organisation and its performance peaks.

Resource Dependency theory

One "relationship resource" is a CEO's political connections. Through relationships with the government, the CEO can obtain outside resources, lowering the uncertainty the company faces. Through their personal networks, CEOs with political connections have greater access to helpful resources. Businesses with well-connected CEOs also have more avenues through which to connect and receive strategic information. Additionally, a political connection might provide the CEO more authority and status. In turn, this raises the CEO's standing and rights in the eyes of important stakeholders. When CEOs make investment decisions, political connections also make it easier to obtain more strategic resources, which reduces risk aversion behaviour (Faleye, Kovacs, & Venkateswaran, 2014). According to Zhang & Huang (2009), businesses with political ties are more likely

to receive land resources, capital resources, and favourable tax laws. Political ties, according to Rusmin, Evans, and Hossain (2012), Sharma, Cheng, and Leung (2020), and Broadstock et al. (2020), considerably boost corporate performance. Wang , Xu , and Zhang (2018) claim that the termination of political connection greatly lowers firm value, while Fan (2021) show that the weakening of political connection lowers firm performance.

Methodology

In this section, the research adopts a positivist approach and utilizes an ex post facto research design. This choice is rooted in its ability to facilitate the extraction of quantitative data from the annual financial reports and accounts of consumer goods companies listed in Nigeria. The study spans a decade, covering the period from 2013 to 2022. The population for this study encompasses the 21 consumer goods firms in Nigeria that were listed on the Nigerian Exchange Group (NXG) as of December 31, 2022. The population was adjusted using a single filter criterion. Firms that were not listed as at December 31st 2013 till December 2022 would be excluded from the study. Also firm without enough information on CEO attributes were also excluded. Hence the study used a sample of 13 firms. The study also employed secondary data source from the firm annual report, (NXG) website and Google search with respect to CEO political connection. The study used descriptive statistics and regression analysis as analytical technique. Diagnostic tests were carried out to validate the classical linear regression model (CLMR) assumptions. The data collected have been summarized using descriptive statistics and was analyzed using multiple regression analysis using STATA.

Model Specification

The model is stated below as

$$ROA_{it} = \beta_0 + \beta_1 CEOFX_{it} + \beta_2 CEOTE_{it} + \beta_3 CEOPOL_{it} + \beta_4 AGE_{it} + \beta_5 LEV_{it} + \varepsilon i$$

Where:

ROA_{it} = *Return on asset for the company i in year t*

ROE_{it} = *Return on equity for the company i in year t*

β_0 = Coefficient of the constant variable

$CEOFX_{it}$ = CEO's financial expertise for the company i in year t

$CEOTE_{it}$ = CEO's tenure for the company *i* in year *t*

$CEOPOL_{it}$ = CEO's political connection for the company *i* in year *t*

$LEVit$ = *Leverage* for the company *i* in year *t*

$FAGE$ = *firm age* for the company *i* in year *t*

$\beta_1, -\beta_5,$ =Regression coefficients of independent variables

ε_i = error term.

Dependent Variable

The dependent variable for this study is the financial performance. This will be proxied by ROA which is measured by profit after tax deflated by total assets. ROE is calculated as profit after tax deflated by total equity of each company.

Independent Variables

The independent variables for this study are CEO financial expertise,   CEO tenure and CEO political connection.

A similar approach is also adopted for CEO financial expertise A dummy variable is 1 if a CEO has experience in accounting and finance and 0 otherwise (Thitima & Piruna 2006). For CEO tenure, dummy variable 1 if the CEO has stayed for more than 3 year, 0 otherwise. With regard to political connection, dummy variable 1 if the CEO is politically connected, and 0 if not (Weichao et al., 2021).

Control variable

Firm age is year of listing in the Nigeria stock exchange, Leverage is the total debt deflated by total asse

Result and Discussion of Findings

Table 1. Descriptive Statistics of the Variables

Variables	No OBS	MEAN	STD DEV	MIN	MAX
ROA	130	6.30	7.81	-12.89	30.33
ROE	130	15.57	44.94	-372.34	187.28
CEOFX	130	0.192	0.396	0	1
CEOTE	130	0.415	0.495	0	1
CEOPOL	130	0.246	0.432	0	1
AGE	130	37.35	14.58	5	58
LEV	130	0.571	0.190	0.101	1.504

Table 1 reveals description of the variables of study. The ROA has a mean value of 6.3% and a standard deviation of 7.81%. The positive mean value of 6.3% implies that the listed consumer goods firms on average are efficient in making profit, out of a given asset for the period of the study. The standard deviation revealed that the firms used for the study do not have same pattern of return on asset evidenced by the wide dispersion of their individual ROAs from the mean. The table also showed that ROA has a minimum loss return of -12.89% and the highest recorded return as 30.33%.

Regarding ROE, table 1 shows an average value of 15.57% and a standard deviation of 44.94%. The positive mean value of 15.57% implies that the listed consumer goods firms on average are efficient in making profit, out of a given equity for the period of the study. The standard deviation revealed that the firms used for the study do not have same pattern of return on equity evidenced by the wide dispersion of their individual ROEs from the mean. The table also showed that ROE has a minimum loss return of -372,34% and the highest recorded return as 187.28% respectively.

With regard to CEO financial expertise, table 1 shows that the mean value of CEO financial expertise (CEOX) measured with a dichotomous variable is has mean value of 0.19 with a standard deviation is 38. This shows that on average, 19.2% of the firms CEO are financial expertise which is not much. Further, table 1 revealed that with respect to CEO tenure, 41.5% of the sample firms during the period of the study have stayed more than 3 years in office as CEO of the firms. In addition, CEO political connection (CEOPOL) measure with a dichotomous variable shows a mean value of .246 and a standard deviation of 0.43. This mean value indicates that on average 24.6% of the sample firms CEO are politically connected.

On the control variable, the table reveals that the leverage has a mean value of 0.57 which suggests that the sample firms are highly levered as 57.1% of the asset are covered by debt. Further, the standard deviation of 0.19 shows is a common practice evidence by low dispersion in the standard deviation.   Finally, the table shows that firm age another control variable has an average age of 37years and a standard deviation of 15years.

Results of Diagnostic Test

In this section, the results of normality of the data, multicollinearity test, heteroskedasticity test, Hausman specification test, are presented and discussed, as shown in the tables below as follows

Normality of Data

Table 2. Normality test

Variables	Obs	Chi2	Prob>z
ROA	130	13.80	0.001
ROE	130	44.41	0.000

Source: Jacque Bera normality test

One classical assumption of OLS regression model is that the error terms are normally distributed. The normality of the residual was test using Jacque Bera test at 5% level of significant. The residual reveal a significant p-value of .001 for ROA model and 0.000 for ROE model which are less than 5% level of significance. This suggest that the residual is not normal distributed.

Multicollinearity Test

Table 3. Multicollinearity test

Variable	VIF	1/VIF
CEOFX	1.36	0.735
CEOTE	1.06	0.942
CEOPOL	1.19	0.843
AGE	1.47	0.682
LEV	1.11	0.897
MEAN VIF	1.24	

Source: VIF result using Stata 13

The study tested for multicolearnity among the CEO attributes and the control variables. The results from Table 3 showed that there is no presence of harmful correlation among the independent variables as the largest Variance inflation factor (VIF) is 1.47 and the smallest tolerance value (TV) is 0.682.

Heteroscedasticity

Table 4 Heteroscedasticity Tests

MOELS	Test	Chi2	P-value
ROA	Breusch- Pagan or cook – Weisberg to test	0.78	0.376
ROE	Breusch- Pagan or cook – Weisberg to test	15.23	0.0001

Heteroscedasticity test was conducted using Breusch- Pagan or cook – Weisberg to test for Heteroscedasticity to look out for this assumption. The Breusch- Pagan or cook – Weisberg test is set at 5% level of significance with a null hypothesis of constant variance (i.e, it is Homoskedastic) the result from table 4 shows a chi2 is 1.61 and the prob>chi2 is 0.376 which is greater than 5 % level of significance. This points out that there is no presence of heteroskedasticity. However, model for ROE display P-value of 0.0001 which suggests that there is presence of heteroskedasticity and need to be corrected.

Panel Analysis Diagnostic Test

Table 5. Hausman Specification Test Effects

	Test	Chi2	P-Value
ROA	Hausman Specification Test	94.66	0.000
ROE	Hausman Specification Test	12.85	0.024

Hausman specification test was conducted after running fixed and random effect model to decide if the effect is random or fixed. The result shows that at 5% level of significance, the chi2 prob>chi2 is 0.000 and 0.024 which is at 5% level significance. This significant p-value shows that Hausman test favors fixed effect model for both model. Due to presence of heteroskedasticity and normality of the data, the study takes

care by using a more robust model with Dicroll-Kraay standard error. Thus, robust fixed effect model was interpreted in the study.

Table 6. Fixed Effect Regression Model with Driscoll-Kraay standard errors

Variable	Coefficients	TV-value	P-value	Coefficients	TV-value	P-value
CEOFX	3.46	3.33	0.009	0.660	4.30	0.002
CEOTE	1.676	2.39	0.040	0.192	3.49	0.007
CEOPOL	2.718	1.62	0.139	0.432	1.86	0.097
AGE	59.123	5.91	0.000	6.02	2.76	0.022
LEV	3.14	6.23	0.000	-0.016	-0.58	0.578
Constant	-4.36	-4.59	0.001	0.235	2.81	0.020
R2 within	34,43			14.43		
f-statistic	136.6			44.84		
p-value	0.000			0.000		

Source: Robust Fixed effect model Result, * denote statistical significance at 5%

Interpretation

The table 6 above presents the result of robust fixed effect model selected for the study based on the Hausman specification test. The regression result discloses that the CEO attributes which are CEO financial expertise, CEO tenure and CEO political connection and the control variables leverage and firm age are able to given account of 34.43% changes in the ROA of the listed consumer goods firms in Nigeria. The F- statistics chi square reveals a value of 136.6 and a p-value of 0.000 which is significance at less than 5% level significance. This reveals that the model is fit and adequate. It also shows that the variables jointly have significant effect on the ROA of the listed consumer goods firms in Nigeria.

Further, he regression result discloses that the CEO attributes which are CEO financial expertise, CEO tenure and CEO political connection and the control variables leverage and firm age are able to given account of 14.43% changes in the ROE of the listed consumer goods firms in Nigeria. The F- statistics chi square reveals a value of 44.84 and a p-value of 0.000 which is significance at less than 5% level significance. This reveals that the model is fit and adequate. It also shows that the variables jointly have significant effect on the ROE of the listed consumer goods firms in Nigeria.

Discussion of Major Findings

From the tests carried out on the data collected and the analyses of the results, these findings are discussed below.

CEO Financial Expertise and Financial Performance

Table 6 reveals that CEO financial expertise has positive and significant relationship with ROA. The table 12 above reveals that CEOFX has a coefficient of 3.46 and p-value of 0.009 which is significant at 5% level of significance. This implies that when firms appoint financial expertise as CEO, the firm ROA will increase by 3.46.-Further, table 6

reveals CEOFX on ROE has a coefficient of 0.660   and p-value of 0.002 which is significant at 5% level of significance. This implies that when firms appoint financial expertise as CEO, the firm ROE will increase by 0.660.

Both finding suggests that financial expertise CEO enhances the financial performance of the listed consumer goods firms in Nigeria. This suggests that if the CEOs are knowledgeable in finance, this will guide them in making strategic discussion and evaluation that will improve the financial performance. As such, financial expertise CEOs perform better than Non-financial expertise CEOs. The finding that CEO financial expertise has a positive and significant effect on the financial performance of listed consumer goods firms in Nigeria highlights the importance of having leaders with strong financial knowledge and skills in this particular industry. Here are some points to consider in the discussion. Further, financially astute CEOs understand the importance of cost management and efficiency. They can implement cost-saving measures, identify areas for cost reduction, and streamline operations to enhance profitability. Their financial expertise allows them to identify wasteful expenditures, negotiate favorable contracts, and optimize the allocation of financial resources, leading to improved financial performance.

The upper echelon hypothesis predicts that Chief Executive Officers (CEOs) who are financial experts can produce better financial decisions and make decisions faster than non-experts, which may result in firm success. This results was in line with that idea. Additionally, it agrees with Schmidtova (2015) and Kokeno and Muturi (2016)'s findings who discovered that CEOs with backgrounds in finance and accounting have a better understanding on financial matters which improves financial performance. This finding is contrary to that of Vorobyeva (2014) and others who discovered that a CEO's financial background had no bearing on performance.

CEO Tenure and Financial Performance

Table 6 shows that CEO tenure (CEOTE) has a coefficient of 1.68 and a p-value of 0.040 which is significant at less than 5% level of significance. This indicates that CEOTE has a significant and a positive and significant effect on ROA of listed consumer goods companies in Nigeria. It suggests that any increase in the tenure of the chief executive officer will lead to 1.68 increase in ROA. In addition, Table 7 shows that CEO tenure (CEOTE) on ROE has a coefficient of 0.192 and a p-value of 0.007 which is significant at less than 5% level of significance. This indicates that CEOTE has a significant and a positive and significant effect on ROA of listed consumer goods companies in Nigeria. It suggests that any increase in the tenure of the chief executive officer will lead to 0.192 increase in ROE. The findings suggest that CEO Tenure has positive and significant effect on financial performance of listed consumer goods firms in Nigeria. This could result from the fact that CEOs who have longer tenures tend to accumulate valuable experience and industry knowledge over time. They develop a deep understanding of the consumer goods sector, market dynamics, and competitive landscape. This expertise allows them to make more informed strategic decisions and navigate challenges effectively, leading to improved financial performance. Furthermore, CEOs with longer tenures have more time to build and nurture relationships with various stakeholders, including suppliers, customers, investors, and regulatory bodies. Strong relationships can result in favorable

business partnerships, increased customer loyalty, improved access to capital, and better regulatory compliance. These factors positively influence financial performance. This finding is in line with upper echelon theory which predicted a negative relationship for longer tenure CEO. The findings is in line with the stock of Leong, et al. (2018) and Diks (2016) and so forth whose finings aligned upper echelon theory as they found evidence that longer tenure CEOs have wide knowledge about the firms that will improve performance. This findings is contrary to the study of Saidu and Baba (2020) who findings suggest that CEO tenure has a detrimental impact on business performance as assessed by ROA.

CEO Political Connection and Financial Performance

The result from table 6 shows that CEO political connection (CEOPOL) has a coefficient of 2.72 and a p-value of 0.139 which is greater than 5% level of significance. This shows that CEO political connection has no significant effect on the ROA of the listed consumer goods firms in Nigeria. Further, table 7 shows that CEO political connection (CEOPOL) on ROE has a coefficient of 0.432 and a p-value of 0.097 which is greater than 5% level of significance. This shows that CEO political connection has no significant effect on the ROE of the listed consumer goods firms in Nigeria.

It reveals that CEO having political connection will not result in any change in financial performance. The finding implies that politically connected CEO does not. This suggests that although theory expect politically connected CEO firms to perform better, the politically connected CEO of listed consumer goods firms in Nigeria are not utilizing their connection effectively to the benefit of the companies. This findings is positive direction is in line with resource dependency theory however, not significant. It is in line with Junus et al. (2022) and Gao et al. (2017) who found no significant relationship between CEO with political connection and financial performance. It is also contrary to Weichao et al. (2021). Innayah and Pratama (2022) pointed that politically connected banks are viewed as highquality assets because they are more likely to obtain support from their political connections in the event of financial difficulties, the study's findings were in line with this theory. Further, EL Ammari's (2022) pointed that politically connected firms may face reputational risks and legal issues that negatively impact their bottom line.

Conclusions and Recommendations

This study examines the effect of chief executive officer's attributes on the financial performance of listed consumer goods firms in Nigeria in Nigeria for the period 2012 to 2022. The study measured financial performance using ROA and ROE. The results from the models reveals that CEO financial expertise and CEO tenure have positive and significant effect on ROA and ROE of listed consumer goods firms in Nigeria while CEO political connection has positive and insignificant effect on ROA and ROE listed consumer goods firms in Nigeria. The study concludes that firms with CEO who are financial expertise outperform firms without expertise in term of financial performance in listed consumer goods firms in Nigeria. Secondly, longer tenured CEO improves the financial performance of listed consumer goods firms in Nigeria while politically connected CEO does not influence financial performance listed consumer goods firms in

Nigeria. In line with the findings and the conclusions of this study, the study recommends that board of directors of listed consumer goods firms in Nigeria When hiring CEOs, consumer goods firms should give significant weight to candidates' financial expertise. The recruitment process should assess the candidates' financial acumen, educational background, and relevant experience. A strong emphasis on financial expertise in the selection criteria will increase the likelihood of appointing CEOs with the necessary financial skills to drive financial performance. In addition, Companies should strive to create an environment that encourages CEO retention and long tenures. This can be achieved by implementing effective succession planning strategies, providing competitive compensation packages, and fostering a positive and supportive organizational culture.

Based on the conclusion drawn on findings, it is necessary and desirable that the management of listed consumer goods companies in Nigeria should focus on aligning the CEO's long-term goals with the organization's objectives to incentivize their commitment and dedication. CEOs with political connections should leverage their political connections to gain market intelligence and stay informed about government policies, regulations, and upcoming changes that may impact the consumer goods industry. This can help the firm proactively respond to changes and adapt its strategies accordingly.

The study recommend that future studies should investigate the mediating and moderating factors that may influence the relationship between CEO characteristics and financial performance. Factors such as organizational size, ownership structure, industry competition, and external market conditions could potentially affect this relationship. Understanding these factors can provide deeper insights into the mechanisms through which CEO characteristics impacts financial performance.

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Original Research

Employee Compensation and Turnover of Chevron Group of Companies

Lawrence Wahua[1] [ID], Ike Romanus Chukwuma
Temitope Reuben Akinsete
Department of Accounting, Admiralty University of Nigeria, Ibusa, Nigeria

Samuel Brobbey
School of Doctoral Studies, Unicaf University, Malawi

Abstract

Dearth of quantification on the nexus between employee compensation and turnover gave rise to this empirical investigation into the effects of employee salary, employee pension scheme, employee allowance, employee share bonus, and employee savings scheme on turnover of Chevron Group of Companies using audited secondary data from annual reports for 2012 to 2021. Anchored on economic theory, the five hypotheses developed for the study were tested simultaneously based on a univariate general linear model with the aid of statistical package for social sciences. The cardinal findings of this study (which carried out descriptive and inferential statistical analyses) show that the effect of employee compensation on turnover of Chevron Group within the studied period is mixed in line with reviewed literature. Salary of employees has non-significant negative effect on turnover; employee pension scheme has significant positive effect on turnover while employee allowances, share bonus, and savings scheme have significant negative effects on turnover. The findings of the study have salient significance in terms of theory, practice, and policy. Far reaching recommendations are put forward.

Keywords: Employee compensation, pension scheme, savings scheme, share bonus, staff allowance, turnover.

[1] *Corresponding author's Email: l.wahua@unicaf.org*

Introduction

Employee compensation and its related elements are inherent expenses of organisations despite the huge investment on robots and artificial intelligence because employees are the greatest and most valued assets of organisations (Chevron Group, 2021). Recent studies on human resource compensation within years 2016 – 2021 have touched a good number of sectors in a good number of countries. Ali, Sharhan and Alsaedi (2021) covered Indian service and manufacturing sectors; Anwar & Abdullah (2021) covered Iraqi public sector institutions; Ellinger and Svendsen (2021) looked at Australian manufacturing sector; Adagbabiri and Okolie (2020) covered Nigeria's oil and gas sector; Akeel, Omar and Masrom (2019) covered Libya's construction sector; Al-Shafai (2017) studied Kuwait' service and manufacturing sectors; Altarawneh (2017) studied Saudi Arabia's banking sector; and Hamid, Maheen, Cheem and Yaseen (2017) studied Pakistan's telecommunication sector.

The topical nature of human resource and its relationship with operational performance lacks hard financial data because survey research design takes centre stage (Ali, Sharhan & Alsaedi, 2021; Anwar & Abdullah, 2021). There is consistent demand therefore for the adoption of financially-backed dataset in investigating the relationship between human resource and organisational performance (Adagbabiri & Okolie, 2020; Akeel, Omar & Masrom, 2019; Hamid, Maheen, Cheem & Yaseen, 2017). There is also a clear demand for the proper investigation of the relationship between employee cost or employee compensation on organisational performance (Sabiu, Mei & Joarder, 2016; Al-Shafai, 2017; Adagbabiri & Okolie, 2020). This gap is still existing; and the need to close it out cannot be downplayed.

Another missing link in the study of human resource and organisational performance is lack of economic theoretical underpin that measures the cost-benefit analysis of firms' investment on employee compensation. This is because the few human resource – performance studies that incorporated theoretical dimension did not consider economic theory (Khan & Garg, 2021; Adagbabiri & Okolie, 2020; Oloruntuyi, Fajuyagbe & Alayo, 2021). While studies have been made on the oil and gas sector, there is no recent study (from reviewed works) on a major oil company with global presence. So, Chevron Group of companies is a good case study for this study. As a big giant in the oil and gas sector, it has invested heavily on its employees as shown in its reviewed annual reports from 2012 to 2021. The company is also one of the big five oil companies in the world with total staff size of 42, 595 persons, turnover of USD 162,465,000,000; total assets of USD 239,535,000,000 and total capital of USD 139,067,000,000 as at 31 December 2021 (Chevron Group, 2021).

This study is driven by the need to bridge observed gaps in literature. First, financial data were collected from audited annual reports of Chevron Group of Companies from 2012 to 2021 unlike the multiplicity of works that used questionnaire as the only source of data collection. The use of hard financial data meets strong reliability test (Wahua & Ahlijah, 2020). While majority of reviewed works lacked theoretical underpin, this study is anchored on economic theory; and test how expenses on employee cost affects organisational performance. While none of the reviewed works considered the impact of

firm size and time factor, this study incorporated these two variables as they are cardinal parts of organisational performance (Wahua & Ezeilo, 2021).

This study is curious to know the justification for the huge expenditure on employees by oil and gas companies; and the salient question is: does the huge employee compensation expenses incurred by oil companies justify their performance in monetary terms (turnover wise)? Practically, does the huge outlay on employee compensation increase turnover? The aim of this study therefore is to empirically establish if employee compensation has significant positive effect on the performance of Chevron Group of Companies using quantitative parametric research approach. In line with the aim of the study, the objectives of the study are to establish if:

RO1: Employee salary has significant positive effect on the turnover/productivity of Chevron Group of Companies;

RO2: Employee pension has significant positive effect on the turnover/productivity of Chevron Group of Companies;

RO3: Employee allowances has significant positive effect on the turnover/productivity of Chevron Group of Companies;

RO4: Employee share incentive plan has significant positive effect on the turnover/productivity of Chevron Group of Companies;

RO5: Employee savings incentive plan has significant positive effect on the turnover/productivity of Chevron Group of Companies.

The five objectives were investigated simultaneously using univariate general linear model, an advanced form of ordinary least square regression analysis. This is in sync with the suggestion that future researches on the relationship between human resource management and organisational performance should use advanced form of statistical analysis (Sabiu, Kura & Reni, 2018; Pamela, Umoh & Worlu, 2017).

Literature Review

Conceptual Framework

In line with the research gaps; and the need to direct this study into a parametric investigation of the relationship between human resource management and organisational performance, this study is pinned to the relationship between employee compensation and turnover of chevron Group of Companies (a major oil exploration and production company globally). The salient concepts for discussion in this study are captured in conceptual framework diagram (Figure 1: conceptual framework diagram).
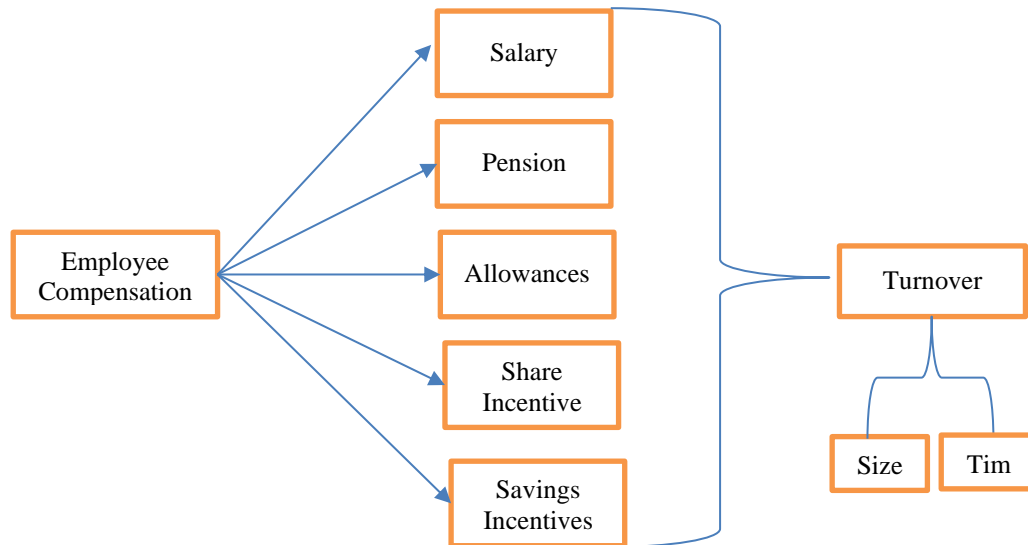
Figure 1. Conceptual framework diagram. Source: Authors (2023)

In Figure 1, employee compensation is the independent variables with four proxies (salary, pension, allowances, share incentive, and savings incentive); turnover is the dependent variables; and size and time are the control variables. This is in sync with the approach adopted by Wahua, Tsekpo and Anyanele (2018).

Employee Compensation

Employee compensation technically means money spent on retaining employees in the employment of the employer (Chevron Group, 2021). The impact of employee compensation on organisational performance has been studied with mixed findings (even though majority of the works established significant positive relationship). Khan and Garg (2021) established that employee compensation has significant positive effect on organisational performance. This suggests that an increase in employee compensation leads to an increase in organisational performance. Adagbabiri and Okolie (2020) established that employee compensation has significant positive effect on organisational performance (even though non-financial indicators were used). Sabiu, Kura and Reni (2018) also studied Nigeria's educational sector and established that an increase in employee compensation increases the performance of educational institutions significantly. Among other variables, Altarawneh (2017) established that employee compensation has significant positive effect on organisational total sales / turnover (a measure of organisational performance). Hamid, Maheen, Cheem and Yaseen (2017) equally established that staff compensation has significant positive effect on the performance of organisations in Pakistan. Conversely, Anwar and Abdullah (2021) found no significant positive effect between employee incentive and organisational performance among sampled public sector institutions in Iraq. Only two theories were tested on the impact of employee compensation on organisational performance: grounded theory (Anwar & Abdullah, 2021), and greater good theory (Anwar & Abdullah, 2021).

Compensation/incentives is a cardinal measure of human resource cost as it shows the quality of human resource engaged by firm: the financial outlay spent by organisations (salaries, pension, allowances, bonuses, and other financial incentives). There is consistent demand for the adoption of financially-backed dataset in investigating the relationship between human resource management and organisational performance (Adagbabiri & Okolie, 2020; Akeel, Omar & Masrom, 2019; Hamid, Maheen, Cheem & Yaseen, 2017). Chief among the objective indicators used in measuring the performance of organisations is total revenue or turnover (a measure of total outputs within a given period (Wahua, Tsekpo & Anyamele, 2018). Therefore, reviewed literature clearly shows lack of objective study on the relationship between employees compensation (a proxy of human resource management) and turnover (a proxy of organisational) despite calls by Ali, Sharhan and Alsaedi (2021), Adagbabiri and Okolie (2020), Oloruntuyi, Fajuyagbe and Alayo (2021), and Akeel, Omar and Masrom (2019) for a quantitative study with real financial data.

Turnover

Turnover is measured as productivity or output in monetary terms (Wahua & Ahlijah, 2020); and works that used it as a measure of organisational performance include the following: Pamela, Umoh and Worlu (2017); Altarawneh (2017); Anwar and Abdullah (2021); and Khan and Garg (2021). Wahua and Ahlijah (2020) holds turnover or productivity as key organisational performance indicator; and this is because it is the measure of cash inflow into organisational banks. For an oil company like Chevron, its turnover or total sales income is a function of the number of barrels of oil and gas produced and sold in a given period. So, turnover simply means total productions converted into money at the prevailing market prices at a point in time. Anwar & Abdullah (2021) established that human resource management has significant positive effect on the turnover of public institutions in Iraq using greater performance theory. Also, Altarawneh (2017) empirically found out that human resource management has significant positive effect on the sales figure (turnover) of banks based in Saudi Arabia.

Organisational Size

Organisations' size could be measured with different quantitative indicators like number of staff, total assets, equity capital, and others (Wahua & Ahlijah, 2020; Wahua & Ezeilo, 2021). The size of an organisation could serve as any variable in research (independent, dependent, and control). In this study, size with serve as a control variable. The reason being that small firms employ fewer staff and large firms employ larger number of staff.

Theoretical Framework

There is need for an empirically leaned parametric study on the relationship between employee compensation and organisational productivity as measured by turnover using economic theory. Economic theory investigates the nexus between employee cost and organisational benefit. This nexus is captured in the diagram of theoretical framework (Figure 2: theoretical framework diagram).
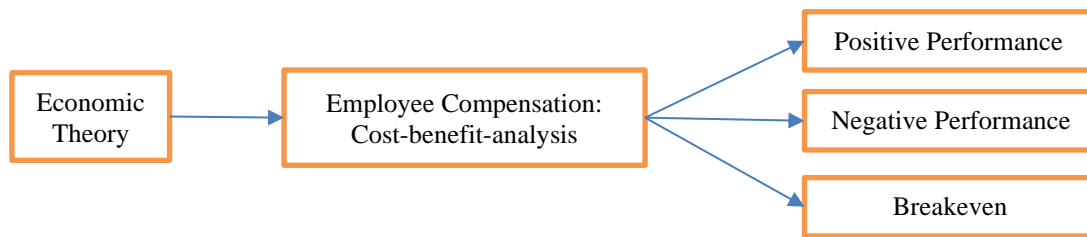
Figure 2. Theoretical framework diagram.

The relevance of economic theory in this study rests on the premise that employee compensation is a huge capital outflow; and the need to relate it to organisational productivity (as measured by turnover) is very important. The cost-benefit-analysis was carried out by Wahua and Ahlijah (2020) with the use of ordinary least square multiple regression analysis to test the relationship between business intelligence cost and employee performance (measured by productivity, turnover and value added. Statistically, cost-benefit-analysis connects independent and dependent variables to establish if their relationship is positive, negative or neutral. In the context of this dissertation, the economic theory is relevant as it would establish if employee compensation cost increases or decreases or indifferent to Chevron Group of Companies' productivity.

Organisations should not just recruit and retain employee at a cost that does not increase their operating performance in concrete terms. This is a well championed position by Mbawuni and Nimako (2015) who called for high level of rationality by organisations' managers: cost must be matched with higher benefits if organisational sustainability must be maintained. Again, Fosu and Poku (2014) also support economic theory in organisational operations as they stressed the need for the institutionalization of cost-benefit framework in order to attain optimum organisational returns above invested cost. Cost-benefit analytical model is very relevant in predicting the inherent benefit of firms' capital outlay on an item vis-à-vis its benefit therefore (Wahua & Ahlijah, 2020). They lay emphasis on how cost expenditure differ from organisational income. In simple terms, economic theory calls for predictive research: how a change in one variable affects another variable. This brings up the question: how does a change in employee compensation affect the productivity of Chevron Group of Companies? This is the focus of this study in theoretical terms.

Empirical Review

The impact of employee compensation on organisational performance has been studied with mixed findings (even though majority of the works established significant positive relationship). Khan and Garg (2021) established that employee compensation has significant positive effect on organisational performance. This suggests that an increase in employee compensation leads to an increase in organisational performance.

Oloruntuyi, Fajuyagbe and Alayo (2021) quantitatively studied the effect of employee cost on the performance of sampled banks in Nigeria based on resource-based theoretical underpin. The work established that employee cost has significant positive effects on the performance of sampled banks within the period studied.

Conversely, Anwar and Abdullah (2021) found no significant positive effect between employee incentive and organisational performance among sampled public sector institutions in Iraq. Only two theories were tested on the impact of employee compensation on organisational performance: grounded theory (Anwar & Abdullah, 2021), and greater good theory (Anwar & Abdullah, 2021).

Adagbabiri and Okolie (2020) established that employee compensation has significant positive effects on the performance of sampled oil and gas companies in Nigeria. The authors demanded for further studies on the relationship between remuneration practices and firm performance using more robust quantitative financial data from sampled firms or organisations.

Sabiu, Kura and Reni (2018) also studied Nigeria's educational sector and established that an increase in employee compensation increases the performance of educational institutions significantly. The authors suggests that there is need for a more robust advanced statistical analysis.

Among other variables, Altarawneh (2017) established that employee compensation has significant positive effect on organisational turnover (a measure of organisational performance). Hamid, Maheen, Cheem and Yaseen (2017) equally established that staff compensation has significant positive effect on the performance of organisations in Pakistan.

Summary of Gaps in Literature

There is consistent demand for the adoption of financially-backed dataset in investigating the relationship between employee compensation and organisational performance (Adagbabiri & Okolie, 2020; Akeel, Omar & Masrom, 2019; Hamid, Maheen, Cheem & Yaseen, 2017). There is also a clear demand for the proper investigation of the relationship between employee cost or employee compensation and organisational performance (Sabiu, Mei & Joarder, 2016; Al-Shafai, 2017; Adagbabiri & Okolie, 2020). These gaps are still existing; and the need to close it is the essence of this research.

Hypotheses Development

There is inadequate empirical study on the effect of employees' compensation on turnover despite calls by Ali, Sharhan and Alsaedi (2021), Adagbabiri and Okolie (2020), Oloruntuyi, Fajuyagbe and Alayo (2021), and Akeel, Omar and Masrom (2019) for such a quantitative study with real financial data. The theories covered by reviewed works are greater performance theory (Anwar & Abdullah, 2021), grounded theory (Khan & Garg, 2021), agency and stakeholder theory (Adagbabiri & Okolie, 2020), resourced based view/theory (Oloruntuyi, Fajuyagbe & Alayo, 2021; Pamela, Umoh & Worlu, 2017; Sabiu, Mei & Joarder, 2016), contingency theory, and ability, motivation and opportunity theory (Pamela, Umoh & Worlu, 2017). One missing theory in recently reviewed literature is economic theory. This theory is critically at the heart of organisational performance as it quantifies the benefits derivable from human resource costs via cost-benefit-analysis.

There is consistent demand for the adoption of financially-backed dataset in investigating the relationship between human resource management and organisational performance (Adagbabiri & Okolie, 2020; Akeel, Omar & Masrom, 2019; Hamid, Maheen, Cheem & Yaseen, 2017). There is also a clear demand for the proper investigation of the relationship between employee compensation on organisational performance (Sabiu, Mei & Joarder, 2016; Al-Shafai, 2017; Adagbabiri & Okolie, 2020). This gap is still existing; and the need to close it out cannot be downplayed. In the light of these, the following hypotheses are put forward for testing:

H1: Employee salary has significant positive effect on the turnover of Chevron Group of Companies.

H2: Employee pension has significant positive effect on the turnover of Chevron Group of Companies.

H3: Employee allowances has significant positive effect on the turnover of Chevron Group of Companies.

H4: Employee share incentive plan has significant positive effect on the turnover of Chevron Group of Companies.

H5: Employee savings incentive plan has significant positive effect on the turnover of Chevron Group of Companies

Methodology

Research design and Model

The descriptive research design was adopted for this study. Osei-Attakora (2022) asserts that descriptive research design is ideal in parametric studies which aim to test hypotheses by ensuring the collection, summation, presentation, and interpretation of data that are very important to a particular study. Parametric quantitative researches like this one is deductive in nature; and descriptive research design is a good fit for it in ensuring that the findings are in compliance with sound methodological statistical analyses (USCLibraries, 2018). The cardinal requirements for a parametric quantitative research are: meeting of data normality requirement; empirical studies involving cause-and-effect (such as this one); and statistical investigations involving test of associations or correlation (Osei-Attakora, 2021). Larson, Story, Eisenberg and Neumark-Sztainer (2016) summarized the critical features of descriptive research design thus: it answers research questions or tests research hypotheses using descriptive and inferential statistical analyses; and it involves different stages or research frameworks that must be adhered to in sequential order. According to Mugwang'a (2014) as cited by Tsekpo (2022), descriptive research design is a good fit for a parametric study for the following reasons: it ensures that the right and complete data are collected in order to objectively test research questions or hypotheses; it helps in the collection of the right data and cleaning them for the right statistical analyses in order to achieve the right interpretation; and it promotes the testing of research theories which helps management in making the best decisions to current or emerging societal and organisation challenges.

A single model was developed for this study based on the main hypothesis. This is because all the sub-hypotheses were tested simultaneously using univariate general linear model (an advanced form of ordinary least square multiple regression analysis). The use of multivariate general linear model to test the hypotheses is in sync with the suggestion that more advanced statistical analysis techniques should be used in testing the relationship between human resource management and organisational performance (see: Sabiu, Kura & Reni, 2018; Pamela, Umoh & Worlu, 2017).

Turnover: $\alpha + \beta salary + \beta pension + \beta allowance + \beta share + \beta saving + \beta capital + \beta Year$

Where:

Turnover	=	Total annual production in monetary terms
Salary	=	Total annual salary paid to employees
Pension	=	Total annual pension contribution to employment
Allowance	=	Total annual monetary allowance paid to employees
Share	=	Total annual share incentive plan to employees
Saving	=	Total annual savings incentive plan to employees
Capital	=	Total annual equity capital
Year	=	Yearly trend of events (a categorical control variable).
α	=	Intercept or Constant
β	=	Coefficients of each variable

Philosophy and approach

This study is guided by the parametric philosophy; and it adopts pure quantitative research paradigm (approach). Again, parametric research philosophy ensures that dependent variable data meet the normality assumption; and carries out cause-and-effect investigation involving correlation and regression analyses (Osei-Attakora, 2021). Pure quantitative research approach is equally ideal for this study for the following reasons advanced by Tsekpo (2022):

i.   It promotes sound and logical generalistion of research findings as it involves the use of large dataset from different years (this study makes us of ten years data from 2012 – 2021);

ii.   Quantitative research approach leads to high level accuracy and objectivity as figures are adjudged to do not lie. This leads to high confidence in the results of the study as reliability and validity are judged to be very sound;

iii. Again, quantitative researches are easier to be replicated as they follow step-by-step procedures from start to end; and

iv.   It is equally important to add that quantitative researches are highly objective because they eliminate researchers' bias: data collection and analyses are scientifically carried out (most importantly, statistical software are used to analyse data);

USCLibraries (2018) posits that pure quantitative research approach has so much to do with deductive research; hence, there is much need for:

i.   The use of logic, figures, sound objective judgment; and testing of hypotheses;

ii.   The use of research instruments like checklist, survey questionnaire, and computer software among others;

iii.   Data collection from large sample size for justifiable generalistion of findings;

iv.   Proper research planning along well established framework for easier replication of the study;

v.   Data which are in the form of figures, charts, tables (number and statistics) and not in text or word form; and

vi.   Finally, quantitative research paradigm requires the furtherance of research concepts and theories, and suggestions of areas for future studies.

Research Strategy

In line with the deductive-quantitative approach of this study, the revised version of the framework developed by Alzoubi (2019) was adopted; and it is in compliance with the position of Godfrey (2019): background of the study, review of recent related literature, justification for the conceptual and theoretical frameworks, development of research hypotheses, data collection and analysis using justifiable approaches, and interpretation and reporting of the findings.

Operationalisation of Research Variables

Table 1. Operational definition of variables

Variable		Measurement	Source
Independent	Salary	Total annual salary paid to employees	Sabiu, Kura & Reni (2018)
	Pension	Total annual pension contribution to employment	Sabiu, Kura & Reni (2018)
	Allowance	Total annual monetary allowance paid to employees	Sabiu, Kura & Reni (2018)
	Shares	Total annual share incentive plan to employees	Sabiu, Kura & Reni (2018)
	Savings	Total annual savings incentive plan to employees	Sabiu, Kura & Reni (2018)
Control	Capital	Total annual equity capital	Wahua & Ezeilo (2021)
	Time	Yearly trend of events	Tsekpo (2022)
Dependent	Turnover	Total annual production in monetary terms	Altarawneh (2017)

Table 1 (operational definition of variables) captures the key variables used in the study, how they were measured, and authors who have used them before. This study investigates the effect of employee compensation on the turnover of Chevron group of companies from 2012 to 2021 using cost-benefit model. It is a pure quantitative research based on parametric tests: which means that the dependent variables is drawn from a normal distribution (Wahua & Ahlijah, 2020). The independent variable of this study is employee compensation; and this is divided into five different types based on the reporting model adopted by Chevron Group of Companies: salary, pension, allowance, share incentive plan, and savings incentive plan (Chevron Group, 2021). Some of the recent studies that measured human resource management with employee compensation are: Anwar and Abdullah (2021), Khan and Garg (2021), Adagbabiri and Okolie (2020), Sabiu, Kura and Reni (2018), and Hamid, Maheen, Cheem and Yaseen (2017).

The dependent variable turnover; and some of the recent studies that used turnover as an indicator of organisational performance are: Anwar and Abdullah (2021), Altarawneh (2017), and Pamela, Umoh and Worlu (2017). The study also incorporated some control variables; and they are firm size (measured by total equity of Chevron Group of Companies), and time factor (a categorical factor that measures how change in time, mostly years, affect organisational activities or performance). Wahua and Ahlijah (2020), and Wahua, Tsekpo and Ayanele (2018) factored these control variables too.

Data collection procedure and techniques

The study made use of aggregate data extracted from annual reports of Chevron Group of Companies' website. This aligns with the suggestion that future studies on human resource management and organisational performance should make use of quantitative financial data (Ali, Sharhan & Alsaedi, 2021; Adagbabiri & Okolie, 2020; Oloruntuyi, Fajuyagbe & Alayo, 2021; Akeel, Omar & Masrom, 2019; Hamid, Maheen, Cheem & Yaseen, 2017). Secondary data collection technique was possible in this study because there are online versions of audited annual accounts of Chevron Group of Companies in the website of Chevron Incorporated. The data collected covered ten (10) years spanning from 2012 to 2021. All the annual reports for the period covered in this study were downloaded from the Group's website; and the figures were picked one-by-one and recorded in an already prepared checklist. The use of checklist as a research instrument is supported by Tsekpo (2022) and Osei-Attakora (2021).

Data analysis procedure and techniques

As a pure parametric-quantitative study, higher statistical analysis technique was adopted: the univariate general linear model (UGLM); and this was applied by Tsekpo (2022). The UGLM is an advanced level of multiple regression analysis. The critical value of the study is 5% and if the probability value (P-value) is greater than 0.05, there is no significance; if the p-value is lesser than 0.05, there is significance; and if the p-value is equal to 0.05, there is marginal significance (Wahua, Tsekpo & Nyamele, 2018).

Basic tests for the use of univariate general linear model was carried out: the Shapiro-Wilk test (see Appendix 1A) was carried out to establish that the dependent variables was drawn from a normal distribution (Tsekpo, 2022); and Wahua, Mkombo, Okai and

Acquah-Yalley (2022); Tsekpo and Wahua (2023) also adopted this approach. In line with the works of Wahua (2015; 2017; 2020), Pearson correlation was carried out to ensure that there no too much auto-collinearity among the variables: mostly the independent and control variables (see Appendix 1B).

Test of between-subjects effects (see Table 3) was carried out to ascertain if the model used in the study is a correct one or not; and since the F-statistic is significant at 0.05, the model was declared a good for the analyzing the data. Finally, the parameter estimates was carried out to test each of the sub-hypothesis using the critical factor of 0.05 as a baseline. These procedures and analyses are in agreement with those followed by Tsekpo (2022).

Data Analysis

Descriptive Statistics

Table 2: Results of descriptive analyses

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Salary (USD)	10	2,235,000,000	1,071,000,000	3,306,000,000	1,918,500,000	694,252,476
Pension (USD)	10	1,359,000,000	392,000,000	1,751,000,000	1,089,300,000	358,376,292
Allowances (USD)	10	170,000,000	189,000,000	359,000,000	284,900,000	68,176,976
Savings Plan (USD)	10	153,000,000	163,000,000	316,000,000	275,200,000	44,118,024
Incentive Plan (USD)	10	703,000,000	462,000,000	1,165,000,000	852,300,000	203,798,948
Turnover (USD)	10	135,898,000,000	94,692,000,000	230,590,000,000	158,862,900,000	45,591,446,058
Total Equity (USD)	10	23,340,000,000	131,688,000,000	155,028,000,000	145,658,300,000	7,880,354,096

Table 2 (results of descriptive analyses) captures the movements of the variables studied with a ten year period (2012 – 2021) for Chevron Group of companies. Based on the economic theoretical framework guiding this study, emphasis is placed on standard deviation (risk indicator) and mean (benefit). Clearly, the benefits derived from all the variables outweighed their risk elements (mean is greater than standard deviation across board). So, it is apt to add that economic theory of employee compensation.

Test of Model

Turnover: α + βsalary + βpension + βallowance + βshare + βsaving + βcapital + βYear

Table 3. Abridged Tests of between-subjects effects

Source	Dependent Variable	R^2	Adjusted R^2	F. statistic	Sig.
Corrected Model	Turnover	0.992	0.963	3309.847	0.001
f. Computed using alpha = .05					

Table 3 (abridged tests of between-subjects effects) shows that the model used in this research is a good fit for the analyses carried out as the F-statistic is significant at alpha level of 0.05 (Wahua & Ezeilo, 2021). Also, the model accounted for 99% and 96% of the variations that occurred in turnover when risk factor is not considered and when it is considered respectively (Wahua et al, 2023).

Test of Hypotheses

The five hypotheses developed for this study were tested simultaneously using univariate general linear model; which is an advanced form of ordinary least square multiple regression.

H1: Employee salary has significant positive effect on the turnover of Chevron Group of Companies.

H2: Employee pension has significant positive effect on the turnover of Chevron Group of Companies.

H3: Employee allowances has significant positive effect on the turnover of Chevron Group of Companies.

H4: Employee share incentive plan has significant positive effect on the turnover of Chevron Group of Companies.

H5: Employee savings incentive plan has significant positive effect on the turnover of Chevron Group of Companies

Table 4 (parameter estimates) captures the results of the five hypothetical tests. The results indicate that:

i.   Employee salary had 33.7% non-significant negative effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021). Therefore, Hypothesis 1 is hereby rejected.

ii.   Employee pension payments had 99.9% significant positive effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021). Hypothesis 2 is hereby accepted.

iii.   Employee allowances had 99.7% significant negative effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021). Hypothesis 3 is therefore rejected.

iv.   Employee share incentive bonus had 98.7% significant negative effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021). Hypothesis 4 is therefore rejected.

v.   Employee savings bonus had 99.9% significant negative effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021). Hypothesis 5 is hereby rejected.

vi.   The size of Chevron Group of Companies (measured by total equity) has 99.6% significant positive effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021);

vii.   Yearly factor due to passage of time has 99.9% significant positive effect on turnover of Chevron Group of Companies within the period studied (2012 – 2021); and

viii.   When all the variables are held constant, Chevron Group of Companies would suffer a decrease in turnover by USD 201,811,130,180 (equivalent to 98.9%); and the chances of this happening is very significant.

Table 4. Parameter estimates

Dependent Variable	Factors	B (USD)	t	Sig.	Partial Eta Squared
Turnover	Intercept	- 201,811,130,180.50	-13.243	0.006	0.989
	Salary	-0.927	-1.007	0.420	0.337
	Pension	160.811	41.307	0.001	0.999
	Allowances	-754.516	-25.690	0.002	0.997
	Incentive Plan	-80.633	-12.141	0.007	0.987
	Savings Plan	-864.126	-42.159	0.001	0.999
	Total Equity	3.654	23.353	0.002	0.996
	Year Factor	32,098,989,518.20	39.649	0.001	0.999

Summary, Conclusion and Recommendations

Discussion of the Major Findings

The hypothetical results of this study are mixed: employee salary has non-significant negative effect on turnover; employee pension scheme has significant positive effect on turnover while employee allowance, employee share bonus, and employee savings scheme have significant negative effects on turnover. In statistical terms, employee pension scheme is a strong morale booster for employee productivity and overall turnover of Chevron Group of Companies. In technical terms, this study agrees with Khan and Garg (2021), Oloruntuyi, Fajuyagbe and Alayo (2021), Adagbabiri and Okolie (2020), Sabiu, Kura and Reni (2018), Altarawneh (2017), and Hamid, Maheen, Cheem and

Yaseen (2017) in terms of employee pension scheme (which has significant positive effect on turnover). Conversely, this study disagrees with Khan and Garg (2021), Oloruntuyi, Fajuyagbe and Alayo (2021), Adagbabiri and Okolie (2020), Sabiu, Kura and Reni (2018), Altarawneh (2017), and Hamid, Maheen, Cheem and Yaseen (2017) in terms of employee salary (which has non-significant negative effect on turnover), employee allowance, employee share bonus, and employee savings (which has significant negative effect on turnover). In concluding this section, this study mostly aligns with Anwar and Abdullah (2021) which established that employee compensation has not significant positive effect on performance of firms.

Significance of the Findings

Theoretically, the economic theory is very relevant in this study: salary expense has negative/decreasing effect on turnover even though it is not significant; employee pension expense has significant positive/increasing effect on turnover while employee allowances, employee share bonus scheme, and employee savings scheme have significant negative/decreasing effect on turnover. Chevron Group of Companies increased its turnover mostly via employee pension scheme. Practically, the turnover of Chevron Group of Companies would decreases to the tone of USD 201,811,130,180 (equivalent of 98.9% decrease) if all employee compensation schemes are held constant (equal zero). So, it makes great practical sense for the Group to continue carrying along with all the elements of employee compensation schemes. Policy wise, Chevron Group should focus more on employee pension schemes as it is the only single compensation schemes with significant positive effect on its turnover within the period under review.

Conclusion

The effect of employee compensation on turnover of is mixed: non-significant negative effect (salary), significant positive effect (pension scheme); and significant negative effect (allowances, share bonus, and savings scheme). These positions succinctly align with other studies. The importance of employee compensation to Chevron Group of Companies is statistically pronounced when its omission would result to 98.9% decrease in turnover. Another salient finding of this study is that employee pension scheme is one singular compensation scheme that increases Chevron Group's turnover by 99.9%. This indicates that employees of Chevron Group has their eyes on the period when they would be out of job due primarily to retirement. The findings of this study are very sound in terms of theoretical underpin (economic theory), policy formulation, and operational practicability.

Summary

Dearth of quantification on the nexus between employee compensation and turnover gave rise to this empirical investigation into the effects of employee salary, employee pension scheme, employee allowance, employee share bonus, and employee savings scheme on turnover of Chevron Group of Companies using audited secondary data from annual reports for 2012 to 2021. Anchored on economic theory, the five hypotheses developed for the study were tested simultaneously based on a univariate general linear model with the aid of statistical package for social sciences. The cardinal findings of this

study (which carried out descriptive and inferential statistical analyses) show that the effect of employee compensation on turnover of Chevron Group within the studied period is mixed in line with reviewed literature. Salary of employees has non-significant negative effect on turnover; employee pension scheme has significant positive effect on turnover while employee allowances, share bonus, and savings scheme have significant negative effects on turnover. The findings of the study have salient significance in terms of theory, practice, and policy.

Recommendations

In view of the hypothetical findings of this study, the following salient recommendations are put forward:

i. The management of Chevron Group of Companies should develop an employee compensation package that would help the companies to optimize their employee' productivity and the Group's overall turnover.

ii. Employee pension scheme of the Group should be given continuous positive attention as its capacity to increase the turnover of the companies is both robust and significant.

iii. Chevron Group of companies should continue to increase its total equity via profit plough-back as it has a robust and significant positive effect on turnover of the Group.

iv. Finally, the Group should be time conscious of its operations as change in year due to passage of time has significant positive effect on the turnover of the Group.

Limitations and Further Study

This study lacks comparative findings for better generalisation. Therefore, there is need for further study to incorporate other multinational oil and gas companies like Shell Group, TotalFinaelf Group, Agip Group, etcetera. There is equally need for the introduction of a moderating variable like size (measure by total assets, total equity, etcetera) in future research. Again, the impact of firm age is missing in this study. This should be introduced as a control variable in future research.

Research Ethics and Conflict of Interest

Sound ethical standard was applied in this study; and the authors can guarantee of no conflict of interest whatsoever. There was not data nor results manipulation; and the raw data used in the study are hereby attached for any replication of the data analyses carried out here.

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Appendix 1A

Normality Test Results

	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Profitability	0.152	10	.200[*]	0.970	10	0.894
Turnover	0.169	10	.200[*]	0.948	10	0.645
Productivity	0.205	10	.200[*]	0.893	10	0.181
Total Assets	0.223	10	0.171	0.898	10	0.207
Total Equity	0.127	10	.200[*]	0.943	10	0.582
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Appendix 1B

Pearson Correlations Results

		Salary	Pension	Allowances	Savings Plan	Incentive Plan	Total Equity	Turnover
Salary	Pearson Corr.	1	0.419	-.633[*]	-0.003	0.089	-0.302	-.563[*]
	Sig. (1-tailed)		0.114	0.025	0.496	0.404	0.199	0.045
Pension	Pearson Corr.		1	-.586[*]	0.393	0.212	-.638[*]	-0.013
	Sig. (1-tailed)			0.038	0.131	0.279	0.024	0.486
Allowances	Pearson Corr.			1	-0.090	-0.184	0.374	0.493
	Sig. (1-tailed)				0.402	0.306	0.144	0.074
Savings Plan	Pearson Corr.				1	-0.330	-0.209	-0.288
	Sig. (1-tailed)					0.176	0.281	0.210
Incentive Plan	Pearson Corr.					1	0.343	.569[*]
	Sig. (1-tailed)						0.166	0.043
Total Equity	Pearson Corr.						1	0.179
	Sig. (1-tailed)							0.310
Turnover	Pearson Corr.							1
*. Correlation is significant at the 0.05 level (1-tailed).								

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Conceptual Paper

Scientific Revolution in Accounting: Paradigm Shift Towards the Use of Fair Values

Hamid Reza Hajeb[1] , Safdar Alipour , Ali Ghayouri Moghadam

Department of Accounting, Faculty of Business and Economics School, Persian Gulf University, Bushehr, Iran

Abstract

The controversy surrounding the scientific or artistic nature of accounting has been the subject of various scientific circles for years, and the source of such debates is the fundamental difference between accounting and natural sciences such as physics, in such a way that some experts consider physics to be the ultimate goal of science. They have tried to bring these two categories together, and on the other hand, some others have completely invalidated such an attempt with some baseless criticism. In this article, we have tried to outline the current and ideal accounting situation while expressing different views on the nature of science and describe the tools to fill the gap between the current and ideal situation. Finally, while respecting the efforts made to draw the path of the scientific movement of the profession, we considered the comparison of physics and accounting to be unworthy, and at the same time, we have given a worthy answer to some of the unfair criticisms. In the same way, we believe that the change of the accounting paradigm towards the use of fair values promises a scientific revolution in accounting, which will smooth the path of the faster movement of the profession towards the scientific position it deserves, but at the same time, we have also mentioned the challenges facing this mutation.

Keywords: Fair Values, Scientific Revolution, Scientific or Artistic Nature.

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[1] *Corresponding author's Email: hrhajeb@gmail.com*

Introduction

The great preoccupation of social science thinkers, especially after the tremendous progress of natural sciences, has always been whether the science of the scientific fields they are interested in is under question. And to put it more simply, can social sciences be called science, and these sciences are just as certain to be science as natural sciences? Accountants are also not free from these concerns, and there have been such discussions in accounting academic meetings (Arab Mazar Yazdi, 1992).

Accounting is considered a science that has evolved over time and plays a crucial role in economic development. It has expanded beyond its traditional role of supporting enterprise management and has become an integral part of economic science and global leadership (Valeriy, Viktor, & Oleksii, 2023). The development of accounting as a science is closely related to the historical development of forces and relations of production, and it satisfies the need for reliable and objective information in business and national economic contexts (Tatarov, 2022). However, there are also discussions about the differences between accounting science and practice, and the need to adhere to methodological principles in both theory and practical activities (Hryhoriy, Mykola, & Sviatoslav, 2023). Accounting science is influenced by the social environment and requires ongoing research to address emerging phenomena (Mislavskaya, 2022). Overall, accounting is recognized as a practical element of economic theory and has a significant impact on economic development (Rabiyatul, Lia, & Mulyadi, 2022).

The definition of accounting as a scientific field is not obvious for everyone. Some consider accounting as an applied activity with the aim of creating a report that describes the financial status and profitability of an economic unit. At the same time, the method that provides a framework for financial reporting inevitably relies on scientific research, given that its subject matter is the assets and business activities of economic enterprises that are prone to continuous and continuous change, which subsequently describes their method. will also be subject to such changes. Based on this, the definition of accounting should include both science and practice. However, the confusion between accounting theories, techniques, and practices, as well as the interchange of roles between academicians and practitioners, pose barriers to the development of the discipline (Przemysław, 2022).

(Thomas, 1981) presents several approaches to describe accounting as a scientific discipline. First, accounting is a social institution and a regulatory system that meets human needs. In this approach, accounting is a normative science that specifies how members of the profession should perform their duties to ensure that social needs are met in an efficient manner. Second, accounting as a positive science is focused on describing, explaining and predicting for the users of financial statements and evaluating the social and economic effects of the application of bookkeeping methods. In fact, Thomas links both approaches: the choice of the best accounting methods is the result of human decisions that are outside the scope of science, but making such decisions requires predicting their consequences, which presupposes the existence of a positive science of accounting.

In fact, for years, the debate about the scientific or artistic nature of accounting has occupied a large amount of writings of various professional and academic societies and international prestigious journals. Many have tried to include accounting in this framework by defining a scientific framework or to classify it outside the framework and only as an art. According to (Sterling, 1975), the root of all these problems and unsolved problems is in the wrong understanding and definition of the problem itself. In defining accounting as an art, he points out two cases of misunderstanding of science and accounting, which have made these two different from each other. First, a misunderstanding of the nature of science with the false belief that science is a set of immutable laws and absolute truths. But the fact is that even the most exact sciences have variable laws. From the point of view of a scientist, laws are general propositions that must be constantly challenged empirically. Unfortunately, accountants, unlike scientists themselves, think that laws are immutable and believe that uncertainty has no place in science. Second, it is a misunderstanding of the nature of accounting in such a way that it is inherently unscientific because it is based on conventions. Accounting in its current state is based on covenants rather than laws, and this is what jeopardizes its scientificity. But these conditions are the existing accounting situation, not the desired situation. According to Sterling, it is the way we look at accounting that makes it unscientific, not the nature of accounting itself. There is no requirement that accounting be based on covenants rather than laws. In other words, there is nothing inherent in accounting that makes it unscientific. Rather, it is our approach to accounting that is non-scientific. Accordingly, the first step in moving towards science is to change the definition of the problem.

This article is typically based on a critical review of several opinions presented in different literatures regarding the scientific or artistic nature of accounting and tries to converge these different points of view into use of one all-inclusive concept currently influencing different aspects of accounting, i.e., fair value accounting. Accordingly, the research methodology of this article is critical, qualitative and descriptive one from the perspectives of research results, processes and the objectives respectively.

In this article, while expressing different views on the nature of science, we also test the nature of accounting with these criteria and put the scientific nature of this field of knowledge to the test and, in addition to these requirements, outline the scientific mobility of the profession. Based on this, in the next part, the nature of science will be discussed from the perspective of several theoreticians in this field, and then the current and desirable state of the profession and the requirements to reduce this gap will be explained. Then, while honoring the valuable efforts of some writers in order to draw the path of the scientific movement of the profession, we note the inappropriate comparison of accounting and natural sciences, and at the same time, we give a proper answer to some of the criticisms that lacked merit. Finally, we consider the change in the accounting paradigm towards the use of fair values as a good omen as a development in the scientific transition of the profession, and in addition, we also recall the upcoming challenges. The conclusion of the discussed topics is also postponed to the final part of the article.

Different views on the nature of science

According to Karl Popper, a theory and field is scientific only if its propositions are falsifiable. Falsification is a feature that is independent of the validity of the theory. A theory can be falsified even if a falsifying experiment is not possible. Falsifiability does not mean that the relevant theory is wrong. Rather, it means that according to this theory, testable predictions can be made, and by testing the predictions of theories, their accuracy can be checked. If the corresponding predictions are wrong, the corresponding theory is rejected. Therefore, a falsifiable theory is one that we can discover to be false. According to Popper, theories that do not meet this criterion are not science but pseudoscience. Popper considered the concept of falsifiability beyond the original, which defines the boundary between science and non-science. He saw the progress of science as an endless cycle in which a theory is proposed, then refuted, and then another theory is presented in its place, and this theory is also subject to falsification. In this way, falsifiability has become the foundation of a kind of science methodology. Scientists should try to disprove the existing theories and present another theory instead. The main advantage of falsificationism is that after disproving a theory, scientists try to present another theory (Gattei, 2010).

Max Weber, a prominent German sociologist, believed that an original work of art will never be replaced and will never become obsolete and no one will say that one work of art has made another work obsolete. But in the realm of science, any theory can be a copy of another theory. According to Weber, incompleteness is the fundamental characteristic of modern science. Knowledge of scientific matters is a form of conquering reality and it never ends. The completion of science is only possible when human history ends. In other words, the science of human works will not be definitive unless humans lose their creativity. Science is a dangerous business that treats scientists unfairly. Because only one experiment can invalidate a very popular theory, while thousands of successful experiments cannot absolutely confirm it. In other words, one violation example is enough to reject a theory, while thousands of justified examples are not enough to confirm it (Seyedi & Ghaznavi, 2013).

In the definition of normal (normative) science, (Kuhn, 2012) says: Normative science is a research that is solidly built on the foundation of one or more scientific achievements, and a certain scientific community believes in those achievements over a period of time and uses them as the basis of future action. I call these achievements a paradigm. Those whose research is based on common patterns are committed to common rules and standards for scientific practice and profession. This commitment and dedication and the clear consensus that emerges from it is a necessary condition for normative science, that is, for the emergence and continuation of a specific research tradition.

According to Kuhn, a paradigm is like a container for scientific theories. In this role, its duty is to tell the scientist what nature contains and what it does not contain, and what is the behavior of those things. In short, Kuhn's thesis is that every science is dominated or influenced by a certain paradigm at any given moment in time. Whenever the previous pattern wants to give its place to a new pattern and model, disorder and anarchy arise, which ultimately results in the revolution of replacing the patterns.

Just as the verb conjugation in the grammar workshop can be subject to specific patterns and examples in a language so that everyone in this literary environment can express his/her pronouns in the form of the desired verbs, in the thought workshop also the verb conjugation Thoughts are greatly facilitated with the help of models (paradigms) and a strong ground is provided for the exchange of thoughts in a specific scientific field. These paradigms are the basis for scientific consensus and preventing irrelevant dispersions in the field of science. This does not mean that we attribute eternal authenticity to paradigms and consider them as eternal examples of every science, that in the course of thinking, errors from those dominant forms of thought are not allowed, but these patterns also change depending on the necessity and demands of the situation.

A paradigm can be discarded because it is not fruitful. At this time, the behavior of scientists is like the behavior of the subjects of a despotic government that dominates all affairs, who suddenly and en masse turn away from it and believe in a new paradigm that promises a new era of peace. This work is a revolutionary work, because just as the leaders of a revolution remove any legitimacy from the actions of the previous established system and consider the servants of that system as life, here too the scientific community has the least pity for those who want to agree with the method and paradigm. They will not satisfy the previous ones. Such people will find no audience, no cooperation, and no job, and their name will be removed from the tablet of knowledge.

In science, as in a factory, changing the tools provided by a paradigm is unusual and reserved for when the need arises. The importance of crises is that they provide a sign that it is time to change the tools. Both in political development and in scientific development, the feeling of doing badly, which can lead to a crisis, is a necessary condition for revolution or paradigm change (Arab Mazar Yazdi, 1992).

Finally, many philosophers and artists have acknowledged that art, as well as science and many other concepts, are indefinable. It is possible to state some characteristics for science and art, however, some sciences or arts may not have these characteristics and at the same time fall under the category of science or art. It should be noted that definitions are words and words are not always able to express concepts, meanings and goals (Seyedi & Ghaznavi, 2013).

The requirements of the scientific mobility of the profession

The main goal of a science, apart from explaining the experimental phenomenon, is to compile general principles through laws and theories in order to justify, explain and predict experimental phenomena. This is the goal of accounting (although in the current situation, it is not easy to achieve this goal). But the purpose of art/artist is to present his personal interpretation (imagination) of a subject, not to accurately represent a subject. In art, a different representation of the same subject is not only acceptable, but also highly desirable. An artist's presentation method depends on his ideas about the subject, not the subject itself. On the other hand, scientists try to stay away from differences. In fact, the difference in the representation of a phenomenon itself causes alarm. The fundamental principle of science is agreement between independent observers, not differences. In science, the presentation of a phenomenon depends on the subject itself, not on the imagination of the scientist. Unfortunately, accounting in its current state deserves to be

more of an art than a science. But as it was said before, this is the current state of accounting, not the desired state. The basic principle of accounting should also be agreement between independent observers. In accounting, the presentation of phenomena should be based on the company's own situation, not the accountant's imaginations and mentalities.

According to (Sterling, 1975), if accounting wants to become an empirical science, the subject of accounting should be redefined in a way that is based on laws rather than conventions. Of course, accounting, like other sciences, needs some covenants. But it is necessary to pay attention to the difference between laws and covenants so that their functional difference is also considered in the action scene. Covenants are contracts whose discretionary choice is made by the rulings of competent authorities (it does not matter which one is chosen) and once chosen, the debate about the advantages and disadvantages of the various options ahead is eliminated and it is only sufficient to be followed uniformly. Based on this, their selection is not a necessity to make different choices according to different conditions. Unfortunately, in the current state of accounting, acknowledging the presence of various covenants such as different methods of depreciation, inventory turnover, etc., their selection is contingent, that is, according to the requirements and conditions, any one of them can be chosen, which is related to the second part. The definition of a covenant is to follow a uniform in contradiction.

One of the implicit consequences of accepting covenants instead of laws is the simultaneous acceptance of arbitrary allocations (because covenants, unlike laws, are not susceptible to empirical challenge). While proposing a pre-institutional law regarding the depreciation of an asset such that "depreciation is the decrease in the output value of productive assets", Sterling is critical of the definition of depreciation in the form of conventional price allocations because it prevents the possibility of deciding between different methods. destroys and the issue remains unsolved because it is originally defined as unsolvable. The inherent characteristic of such allocations is to assign current values and measurements to future values. For example, actual depreciation cannot be determined until the asset is sold; Actual profits cannot be determined unless the company is liquidated. This way of defining problems in accounting is such that it makes the problems basically unsolvable. With these definitions, we have made it impossible to determine profit or depreciation until some events occur. If one makes current measurements dependent on future events, the actual current values will never be known because future events are always formed in time and unfortunately the future is never known and can only be predicted or estimated. In other words, the lack of agreement about the future will lead to the lack of agreement about the current measurements. Unfortunately, this method always involves constant corrections or admitting that all past measurements were wrong. Although we can change past figures, users who made decisions based on those figures will no longer be able to change their past decisions. Again, we note that this is the current accounting situation and there is no obligation to predict the future for current measurements. Measurement is the process of discovering a current value, not the process of assigning past values to time periods based on forecasting future values.

In response to the criticism of some who believe that accounting deals with cost rather than values, Sterling states that dealing with cost accounting is a consequence of the

definition of accounting; we could define it in another way. Another more severe criticism is that depreciation based on historical cost, while lacking an empirical basis, has a theoretical basis. In response, it is necessary to explain two basic concepts in science: experimental and theoretical. Empirical concepts should be susceptible to empirical testing. On the other hand, theoretical concepts are susceptible to logical testing, that is, to prove that that concept has some logical relationship with other concepts through the channel of laws. In accounting terms, the theoretical concept must be relevant. That is, having a theoretical basis means being relevant. According to Sterling's belief, depreciation based on historical cost is not relevant and therefore lacks a theoretical basis because this concept is not related to other concepts and no decision-making model can be found that uses this concept as an input to the model. It is therefore surprising that we continue to define concepts such as price allocation instead of value measurement.

According to (Stamp, 1981), the importance of relevance should be unequivocal and obvious in a field of knowledge such as accounting. But in accounting, the combination of objectivity and relevance can only be optimized, not the maximum. Stamp generally agrees with Sterling that accountants should pay more attention to experimental testability, but he believes that this term is exactly synonymous with provability.

Inappropriate comparison of accounting and physics; Answer to some criticisms

Natural sciences such as physics and chemistry focus on discovering the laws that apply and explain the phenomena in the real world. The field of these sciences has expanded so much that in addition to interpreting the past, they also include the ability to predict the future. On the other hand, social sciences pay special attention to human behavior in everyday life and in comparison with a group of fellow human beings. Since human behavior is affected by many factors, it is not 100% predictable. The principles derived from these sciences are in no way comparable to their counterparts in the natural sciences. The fact that these sciences have never been able to predict does not mean that these sciences are not science. On the other hand, we can also mention the history and antiquity of these sciences, many social sciences are new (Seyedi & Ghaznavi, 2013).

Sterling, in determining the direction of the profession towards science, unfortunately targets physics in many cases, which itself has caused a lot of criticism. Although many of these criticisms have been made without considering the introduction of Sterling that "the current state of the accounting profession does not deserve anything more than art", but we also believe in this article that the comparison of accounting with physics is not appropriate. And not necessary. Therefore, while accepting this false analogy, we would like to give a proper answer to some of these criticisms (Sterling, 1975).

We must examine the intrinsic nature of accounting and see if it deals with phenomena like the phenomena of physical science. It is important to know that the scientific method in sciences such as physics is based on the assumption that nature has fixed laws. The scientist's duty is to discover these laws, and if an experiment violates the law, it is the scientist who made a mistake in proposing his law, not that nature has changed in the meantime. The facts and mechanisms of physics are subject to discovery, but they are independent of humans, and physics deals with a world that would exist without scientists.

The world of physics deals with universal propositions that are universal across all times and places. Its laws, like gravity, are always followed, at all times and in all places. The laws of physics are autonomous, unlike the laws of accounting and law (obeying or disobeying them does not create a problem in them). We discover them but we cannot make them. But on the other hand, accountants operate in a completely different environment. If one of the accounting rules is considered unacceptable, it cannot be said that the accountants made a mistake in raising it. Real world conditions may have changed in the meantime in such a way that the said law is no longer applicable or people have prevented its acceptance. Accounting deals with a system that is built and handled by people, so its basic features are constantly changing and evolving. The main characteristics of the accounting environment are not fixed either in the dimension of place (Marxists have a different view of accounting compared to the Securities and Exchange Commission) or in the dimension of time (the history of accounting is the history of humanity's adaptation to human changing conditions). Of course, the latter case is one of those criticisms that have been made without considering the fact that this is the current state of accounting, which makes it deserve nothing more than art, not its favorable state. In addition, accounting changes in time and place are due to the necessity of development and evolution, which will undoubtedly continue in the future.

According to Stamp's point of view, unlike length, characteristics such as profit, value, and wealth are not unambiguous, unique, and inherent characteristics of an object in the real world. But in principle they are measurable and therefore experimentally testable. depending on whether it is determined exactly whether the net recoverable value or its replacement value (which one) should be measured (it is necessary to remember that our purpose in this article is also to instill the view that accounting measurements should be based on the fair value criterion) . But for many balance sheet assets, the measurement will not necessarily be anything more than an estimate. Therefore, wide differences in the estimates of the net recoverable value or the replacement price of the assets will be possible and as a result these estimates will lack objectivity. This view of Stamp is derived from the current state of accounting, not its desired state. As mentioned earlier, the current state of accounting, according to Sterling, is more worthy of being an art than a science. And it is necessary to move towards science, to distance yourself from non-provable covenants and contracts and to formulate provable laws. As Stamp also believes, by developing accurate measurement rules, it is possible to increase the accuracy and objectivity of the resulting measurements.

From Stamp's point of view, another problem with accounting measurements (as opposed to physics) is that accounting measurements are not aggregable: even if all assets of a company are measured on the same basis (e.g., net recoverable amount) they rarely The sum of each of these values will be equal to the total value. This criticism seems very strange and superficial. Because when two measurements must reach exactly the same result when both measurements are of the same object and only in the second measurement, that object is separated into components. On the other hand, if a company is divided into components, some assets will be lost in the meantime, and those are intangible assets that only appear in the form of a combination of assets under the banner of a company. Accordingly, if the sum of individual assets of a company is equal to the value of the entire company, it is strange, not their inequality. Because in fact two completely different objects are measured. But in physics, for example, if we divide the

length of an object, which is one meter, into 100 parts of 1 centimeter, the sum of them will still be one meter, because in this case, by dividing an object into parts, nothing is lost in between, that two make the measurement different.

In criticizing Sterling's proposed law, Stamp argues that: it is clear that laws of this type can never have the acceptability or usefulness that scientific laws such as conservation of mass or gravity have, and this is due to the inherent nature of the phenomenon that They have that business. Changes in customers' tastes, production techniques, strikes, changes in tariffs and other types of unpredictable economic phenomena turn the hope that these laws can be practical or accurate into despair. In addition, in another place, he points to the effect of volume (bulk buying or selling) on prices as another criticism of Sterling's law, and in addition, by implicitly accepting the view of critics of output values, he believes that output values are independent of intentions. Roshan market participants is completely irrelevant. However, he believes that we should not abandon the use of output values just because there is no clear intention to sell. These statements seem to show Stamp's greater enthusiasm than Sterling for comparing accounting and physics! Sterling himself does not claim that his proposed law is the cornerstone of the laws of physics. Rather, his goal in proposing such laws is to distance himself from arbitrary and arbitrary covenants and allocations and increase the dimension of experimental testability (verifiability) of accounting measurements, which is definitely the use of more testable output values than arbitrary allocations. The rules will have a historical cost and will be more relevant to the needs of the users. Otherwise, it is obvious that the measurement criterion in accounting is monetary values, which are subject to supply and demand, which in turn are the result of the movements and dynamics of human societies. According to Stamp himself, accounting measurements should be related to the needs of users, which is a self-justification for using current values instead of allocation.

In addition, in the definition of depreciation, Sterling (1975) does not distinguish between changes in value caused by external factors such as price changes and changes in value as a result of the deterioration of the asset's service potential. In times of rapid price increases, his definition leads to negative figures for period depreciation. If the output value of an asset increases over a period, there is no doubt that its utility potential has decreased. This problem can also be solved in such a way that it is possible to separate the value changes caused by the increase in the general level of prices by using the relevant economic indicators. However, according to Stamp, defining and measuring the potential of profit and the rate of its deterioration (obliteration) will obviously face problems, but this fact does not justify failure to make such an effort.

Stamp in another strange criticism on the classification of scientific concepts, which is divided by Sterling into two types of empirical and theoretical concepts, and the latter is considered equivalent to relevance in accounting, without considering the second dimension of scientific concepts and only considering the empirical. Being scientific concepts, he argues that the concepts used in the two branches of logic and mathematics cannot be discovered by conducting an experiment. Concepts of various other types such as justice, rights, duties, etc. cannot be tested with experimental methods. They are not related to experimental phenomena, they are not related to measurable characteristics, and they do not lead to concepts that are connected with experimental phenomena. But by

Stamp's own admission, none of these concepts are useless and all of them have practical value, that is, they are relevant. Therefore, they belong to the second category of scientific concepts. Therefore, this criticism is actually a confirmation of Sterling's view that allocations based on historical cost are useless because they are neither empirically testable nor relevant.

According to Stamp, many authors are of the view that relevance to the needs of users is the dominant requirement of accounting information. The needs of users are extremely diverse and accountants should pay more attention to the problem of persuading these diverse needs, possibly by providing multi-column reports. Doing so may modify the value nature of accounting measurements that are drawn on a single basis. However, Sterling disagrees with this approach and argues that the policy of unlimited expansion of data is in practice the finish line on the formulation of a reporting theory and prevents the movement towards accounting science. However, it seems that the increasing diversity of accounting theories and methods has led to the existence of several competing paradigms in accounting, and in fact, we are facing a plurality of dominant paradigms in accounting. Kuhn himself says about the possibility of multiple paradigms and the existence of competing theories: Philosophers of science have repeatedly proven that more than one theoretical structure can be placed on a given set of data. The history of science has shown that, especially in the early stages of the development of a new model, it is not so difficult to even invent several options. According to Vernon Kam, if accounting researchers cannot agree on one of these models, then accounting will be a multi-paradigm scientific system or field in the coming years (Arab Mazar Yazdi, 1992).

Scientific revolution in accounting: changing the paradigm towards the use of fair values

(Kuhn, 2012) believes that scientific development has two different phases: in the phase called the normal phase of scientific research, when knowledge is added, a cumulative development occurs, the predictions of a paradigm constantly clash with reality. are compared and the theory is continuously adjusted. Due to slow changes in standards, accounting evolution usually follows this path. But science enters a revolutionary phase when a crisis cannot be solved in the context of the prevailing paradigm; That is, a paradigm shift occurs. This is because we cannot get from the old paradigm to the new paradigm only through the cumulative addition of new knowledge.

(Kuhn, 2012) describes scientific revolutions in the form of the following four steps:

1. Recognition of abnormalities

2. Period of uncertainty (crisis)

3. Development of different set of ideas

4. Predominance of a new paradigm

(Kovacs & Deak, 2012) by raising two of the biggest challenges facing the accounting profession in recent years, i.e. intangible assets and financial instruments, argue that the tools available to normal science are not enough to create growth in this matter somehow.

If the previous achievements and traditions were preserved, it would be very difficult to solve such issues. According to Kuhn's (2012) theories, if it is proven that normal knowledge tools are insufficient to investigate an abnormality, unexpected researches will begin, which will lead to the opening of ways for scientific resolution and ultimately, they lead to a new paradigm that has nothing to do with the previous paradigm. (Shortridge & Smith, 2009) also agree that the changes following the anomalies that surround the recognition of intangible assets have such dimensions that can lead to a paradigm shift in financial reporting; Events that eventually translate into adjustments or jumps to the new phenomenon of the information economy. According to them, the most important elements of the emerging paradigm will be as follows:

1. Globalization

2. Increasing emphasis on principles in principles in the legislative framework

3. Focus on the concept of economic events

4. Replace reliability with fair presentation

5. Relevance as a fundamental quality feature

6. Measurements based on fair value

In this regard, the new conceptual framework highlights two qualitative characteristics: relevance and fair presentation, which have become the most important characteristics of information disclosed in financial statements. The reason why these factors have become the most important quality characteristics is the fact that only the correct and relevant information can be useful to the users of the reports.

The role of fair value-based measurements also appears to be changing. Theoretically, individuals have three valuation models to measure their assets: cost, revaluation and fair value. Fair value concepts and fair value measurements have been seen as an opportunity to overcome the specific limitations of the balance sheet. Basically, it is believed that regardless of the initial price, the current values of the assets reflect their current relative values. In 2011, the International Accounting Standards Board issued Standard No. 13, the first stand-alone standard specifically devoted to fair value measurements, applicable to both financial and non-financial assets. In this standard, fair value is defined as: the price that would be received or paid if an asset were sold or a liability transferred in an orderly transaction between market participants on the measurement date. Similarly, fair value is the price that would be determined in a hypothetical market during a hypothetical transaction. Separate legislation for fair value-based measurements in the international financial reporting standards system is a decisive step towards the adoption of the new paradigm (Kovacs & Deak, 2012).

Challenges facing accounting based on fair value

Fair value accounting is a financial reporting approach that is also known as the "mark to market" accounting practice. Using fair value accounting, companies measure and report the value of specific assets and liabilities based on their real or estimated fair

market prices. Changes in the value of assets or liabilities over time cause unrealized profit or loss, increase or decrease in net profit, as well as equity in the balance sheet.

The primary advantage of fair value accounting is that it provides accurate valuation of assets and liabilities on an ongoing basis to users of a company's reported financial information. When the price of an asset or liability increases or is expected to increase, the company increases the value of the asset or liability to its current market price to reflect what would be received if the asset were sold or would have to be paid to settle the liability. . Conversely, the company reduces the value of an asset or liability to reflect any decline in market price.

On the other hand, fair value accounting limits the company's ability to potentially manipulate reported net income. Sometimes the management deliberately prepares to sell certain assets to use the profit or loss from the sale to increase or decrease the net profit reported on the desired date. Using fair value accounting, gains or losses arising from any change in the price of an asset or liability are reported in the same period as they occur. While an increase in the value of assets or a decrease in the value of liabilities adds to net income, a decrease in the value of assets or an increase in the value of liabilities reduces net income.

At the same time, fair value accounting can also create challenges for companies and users of their reported financial information. Market conditions in which certain assets and liabilities are traded are usually volatile and even volatile at times. By using fair value accounting, companies reassess the current value of certain assets and liabilities even in bubble market conditions that have the potential to cause severe fluctuations in the value of those assets and liabilities. However, as the market stabilizes, such changes in value are likely to revert to prior normal values, thereby rendering any reported gains or losses temporary, meaning that fair value accounting can provide misleading information. provided at that time.

Additionally, the use of fair value can have a more severe adverse effect on a low-end market. For example, after an asset has been devalued by a fall in current market trading prices, the lower value of the asset can cause more of that asset to be sold at even lower prices. Without the impairment required by fair value accounting, companies may not feel the need to sell an asset in a down market to avoid further impairment of that asset. In the absence of additional pressures to sell, the market may be more stable over time, which helps preserve asset values (Gaille, 2015) (Way, 2017) (Trajkovska, emjanovski, & Koleva, 2017).

Conclusion

It seems that the analogy between physics and accounting is neither appropriate nor necessary, and in order to prove that accounting is scientific, there is no need to target physics and other branches of natural sciences as the goal of scientific aspirations. Accounting is also a scientific branch with special features of this field of knowledge which may not necessarily have any relationship with concepts in physics and even having such a relationship will not be a test of its being a science, as there may be similarities. In other words, the definition of science in the form of words and expressions

or the expression of scientific examples is not exhaustive and it may have scientific concepts, but it does not have some of the characteristics of definitions or examples. The accounting profession is currently in a stage of scientific transition, and that paradigm shift is towards the use of fair values, which is a proof of the multi-paradigm nature of accounting. This paradigm shift is synonymous with Kuhn's scientific revolution and will promise tremendous changes that will make the path of the scientific movement of the profession smoother and fill the gap between the current and desired accounting situation to some extent.

However, the application of fair value accounting is not free of serious challenges. One of the main challenges of fair value accounting is the volatility and uncertainty that it introduces to the financial statements. The changes in the fair value of securities may not reflect the underlying cash flows or economic substance of the firm, but rather the market fluctuations or noise. Another challenge is the potential for manipulation or bias in the valuation process. A firm may use different assumptions or models to inflate or deflate the fair value of its securities, depending on its incentives or expectations. And finally, the lack of an organized reliable market for many assets and securities hampers the use of fair value accounting.

Future researchers are suggested to empirically investigate the relevance magnitude of fair value information through quantitative examination of market reaction before and after using fair value-based data. Likewise, it is suggested that the market's reaction extent to information based on fair value be measured and ranked based on different classes of assets. In addition to this, various assumptions and valuation models of fair value measurement for balance sheet and income statement items should be examined, and different models proposed should be evaluated based on how the market reacts.

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