

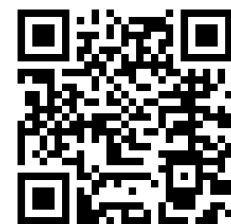


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Original Research

Understanding Green Cosmetic Adoption in Indonesia: Environmental Consciousness and the Theory of Reasoned Action Perspective

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Abstract

Amidst growing concerns about environmental degradation, global trends increasingly emphasize the urgency to adopt eco-friendly consumption patterns. This paradigm shift drives the emergence of sustainability-centered products, especially in the cosmetics sector. Despite experiencing substantial growth, the eco-friendly cosmetics industry in Indonesia continues to grapple with various obstacles that require resolution. In addition, researchers' attention to green cosmetics still needs to be increased. This study integrates environmental consciousness into the Theory of Reasoned Action (TRA) framework to bridge this research gap. The main objective is to comprehensively examine consumers' intention to purchase environmentally friendly cosmetic products. By employing a quantitative approach, we surveyed a sample of 305 respondents from Indonesia. The collected data was then analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) technique to validate the hypotheses. The results showed that environmental consciousness and subjective norms directly and significantly affect consumer attitudes. Likewise, environmental consciousness, subjective norms, and consumer attitudes influence consumers' intention to purchase green cosmetics. In addition, it was revealed that consumer attitude serves as a potential mediator in mediating the effect of environmental consciousness and subjective norms on consumer purchase intention. This study offers insights into sustainable cosmetics. Companies can use this to enhance marketing strategies for environmentally conscious products.

Keywords: Environmental Consciousness, Green Purchase Intention, Green Cosmetic, Subjective Norms, Theory of Reasoned Action (TRA) Integration.

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Introduction

The advancements in social sciences and technology have brought about significant changes in societal life. While these changes offer convenience and comfort, their impacts also carry the potential emergence of severe environmental issues (Nam et al., 2017). The gradual deterioration of environmental conditions poses a threat to the fragile environmental balance of nature. In response, the current global trends increasingly emphasize environmental protection and encourage the adoption of environmentally friendly consumption patterns in alignment with the evolution of nature (Akturan, 2018).

The global initiative to produce and market environmentally friendly products continues to evolve in response to the increasing demand (Leonidou & Skarmas, 2015). This drives a shift in consumer purchasing behavior from conventional patterns toward choosing more environmentally friendly products (Quoquab et al., 2019). This paradigm shift is also evident in the cosmetic industry, where the global demand for sustainable cosmetics grows (Ali et al., 2022; Ghazali et al., 2017). According to Statista data (Statista, 2022), the estimated global market value of environmentally friendly cosmetics will reach USD 54.5 billion by 2027, up from the USD 35 billion figure in 2021.

The growth trend in the cosmetic industry is also observed in Asia, particularly in Indonesia. Currently, Indonesia possesses a local cosmetic market with a value of approximately USD 6.3 billion. This figure continues to experience an increase with an annual growth rate of 5.81 percent (Mutia, 2022). This growth is primarily driven by the continuously expanding demand, especially from the middle segment in Indonesia, which seeks cosmetic products that are not only of high quality but also financially accessible. As a result, this sustained growth contributes to the overall expansion of the cosmetic sector and personal care products (Chin et al., 2018).

The increasing consciousness of the importance of health, the environment, and the dangers posed by synthetic chemicals has driven an interest in adopting a healthier lifestyle (Zollo et al., 2021). Its impact is evident in the green cosmetic trend, which has become a focal point in the personal beauty industry (Lin et al., 2018). Despite the growth of the green cosmetic market in Indonesia following global directions, its market share remains relatively low compared to conventional cosmetics. Significant challenges arise due to higher prices of green cosmetic products in the Indonesian market (Basumbul, 2016).

Hence, there is a need for research on consumer behavior within the realm of environmentally friendly cosmetics in Indonesia, aiming to heighten consumer inclination towards eco-conscious merchandise. Given the substantial potential embedded within Indonesia's cosmetics market, an opportunity emerges for eco-friendly cosmetics to amass a more significant market segment, concurrently fostering contributions towards environmental preservation. Furthermore, it is noteworthy to accentuate that despite the escalating vogue of eco-friendly cosmetics, this specific product category remains deficient in attention within the extant research paradigm (Liobikienė & Bernatoniene, 2017).

The Theory of Reasoned Action (TRA) has been broadly employed across diverse domains of green consumerist conduct. Examples include organic food products (Roh et al., 2022), electric vehicles (Alzahrani et al., 2019), general environmentally friendly purchasing behavior (Kautish et al., 2019), green smartphones (Liu & Tsaur, 2020), and sustainable clothing (Rausch & Kopplin, 2021), all aimed at investigating consumer environmentally friendly purchasing behavior. In the classical TRA, subjective norms and attitudes are critical variables in the model. This model identifies the drivers of consumer behavior by examining the effects of these variables on behavioral intentions (Ajzen, 1985; Fishbein & Ajzen, 1975).

This study seeks to expand the range of attitudes and subjective norms by incorporating environmental consciousness into the original Theory of Reasoned Action (TRA). The main objective is to offer a more comprehensive explanation of the factors that impact purchase intentions of green cosmetics. The growing emphasis on environmental and sustainability concerns adds depth to the framework by integrating environmental consciousness. Consumers increasingly demonstrate a heightened consciousness of the significance of lessening detrimental ecological effects through their purchasing choices as the global conversation on environmental consciousness gains momentum. This heightened environmental consciousness can shape consumer attitudes toward eco-friendly products, thus fostering a more favorable evaluation of purchasing behavior (Khaleeli & Jawabri, 2021).

By integrating environmental consciousness variables, this study can provide a more comprehensive picture of the determinants influencing consumer intention to purchase environmentally friendly cosmetic products. The findings of this study are expected to enhance our understanding of the Theory of Reasoned Action (TRA) in the context of green product consumption. In addition, the findings are also expected to provide practical insights for manufacturers and marketers to help them design more vital strategies to influence consumers' intention to purchase environmentally friendly cosmetic products.

Literature review

The Determinants of the TRA Model

To understand consumer behavior, especially regarding sustainable purchase decisions, researchers have relied heavily on robust theoretical frameworks to explain the dynamics behind individual decisions. One theory that has received widespread attention is the Theory of Reasoned Action (TRA), developed by Fishbein & Ajzen (1983). The theory explains how intentions, attitudes, and subjective norms influence individual actions. This review aims to outline the application and significance of TRA in sustainable purchasing, with a particular emphasis on green cosmetics in Indonesia. Further expands on this, emphasizing the predictive power of an individual's intention, formulated through subjective norms and attitude, in determining the likelihood of executing a specific behavior.

TRA theory rests on the premise that individuals' behavior is controlled by their intentions, which are influenced by attitudes toward the behavior and subjective norms

(Ajzen, 2020). Attitudes involve a person's positive or negative evaluation of specific actions (Wang et al., 2021; Yang et al., 2018), whereas subjective norm refers to the perceived social pressure to perform or not perform a behavior (Pena-Garcia et al., 2020). These two factors form intentions, directly influencing the actions taken.

The application of TRA has extended to various contexts of sustainable behavior. Research has examined the purchase of organic products (Roh et al., 2022), electric vehicles (Alzahrani et al., 2019), environmentally-friendly products in general (Kautish et al., 2019), eco-friendly smartphones (Liu & Tsaur, 2020), and sustainable clothing (Rausch & Kopplin, 2021), demonstrating the adaptability and relevance of TRA across multiple domains. Interestingly, TRA explains product selection and has been used to understand practices such as implementing Green Information Technology (GIT) in the workplace (Mishra et al., 2014) and adherence to conservation agriculture practices (Van Hulst & Posthumus, 2016).

In a more specific study, Jang & Cho (2022) found that although organic food is often visually unappealing, recognition of its benefits significantly influences consumers' positive attitudes. This confirms that perceptions of product quality and benefits can overcome aesthetic prejudices. Similarly, Zhu et al. (2022) used the TRA to suggest strategies for assessing and addressing food safety hazards, confirming the flexibility of the theory in informing practical interventions.

This literature review also identified the need to understand better how attitude mediates between subjective norms and environmental consciousness with purchase intention. Previous research has explored the relationship between environmental consciousness, subjective norms, attitudes toward green products, and purchase intentions (Echchad & Ghaith, 2022; Grappe et al., 2021; Leclercq-Machado et al., 2022; Mamun et al., 2020), but often do not fully recognize the critical role of attitude as a mediator.

In this context, our research aims to fill this gap, providing new insights into the dynamics of interactions between variables in TRA, especially in green cosmetics. We believe that with the growth of the green cosmetics market, understanding the factors influencing consumers' intention to choose green cosmetics is essential. Through a more in-depth approach, this study seeks to articulate the interactions between variables and communicate the findings in a way that has not been done before. TRA remains a valuable and relevant theoretical framework, guiding research in various sustainable behavioral contexts. By integrating a deep understanding of the mediating role of attitudes and applying it to the green cosmetics industry in Indonesia, this study contributes to the existing literature by clarifying and expanding our understanding of the factors that motivate consumer purchasing decisions. This marks an essential step towards developing more effective marketing strategies and sustainable sustainability initiatives.

Environmental Consciousness

Environmental consciousness that emerges as a social-altruistic orientation is a response to the environmental crisis. It encourages individuals to pay more attention to environmental impacts that affect the well-being of others (Newton et al., 2015). Many

researchers have focused their studies on environmental awareness as a response to the increasingly pressing environmental issues in various parts of the world.

Several studies have shown a close relationship between environmental protection consciousness and environmentally friendly behavior. For example, Huang et al. (2014) found a correlation between environmental protection consciousness and behaviors that support environmental sustainability. On the other hand, Bittar (2018) states that environmental consciousness does not always influence economic dynamics. However, other studies, such as Kautish et al. (2019) and Xu et al. (2019), confirmed that environmental consciousness is essential in moderating green purchasing behavior and willingness to pay for green products.

Not only in the consumption aspect, but environmental consciousness also influences travelers' intention in choosing a green destination (Ahmad et al., 2020). In Europe, public environmental consciousness is divided into three segments: pro-environmentalists, moderate environmentalists, and sideline environmentalists (Golob & Kronegger, 2019). In the context of education, Agull et al. (2019) found that the environmental consciousness of elementary school students is higher than that of secondary school students.

Technology is also inseparable from the influence of environmental consciousness. This can be seen from the influence of environmental consciousness on consumer intentions in adopting 5G technology (Shah et al., 2021). In the current context, Generation Z's green practices are also influenced by environmental consciousness (Agrawal et al., 2023). This is reflected in China's consumption of organic food and eco-friendly cell phones (Parashar et al., 2023; Kerber et al., 2023). Further, Chang et al. (2022) found that environmental consciousness is essential in tracking pollution sources.

However, most of the above studies are based on the TPB framework, where environmental consciousness serves more as a precursor to attitude than behavioral intention (Echchad & Ghaith, 2022; Mamun et al., 2020). Environmental consciousness reflects an individual's ability to recognize, understand, and care about the environmental impact of purchasing and consumption decisions (Kim & Lee, 2023).

Referring to this background, our research aims to integrate environmental awareness into the Theory of Reasoned Action (TRA) to provide a more holistic explanation of the factors influencing consumers' intentions and attitudes in purchasing green cosmetic products in Indonesia. This is based on the gap between environmental sustainability issues and the increasing level of conventional consumption (Grooten & Almond, 2018).

Hypothesis Development

Environmental Consciousness

Despite decades of efforts to increase environmental consciousness, the consumption rate of conventional products continues to rise (Grooten & Almond, 2018). According to Kennedy et al. (2009), consumers recognize a gap between their environmental consciousness and high consumption levels. This dichotomy underscores the need for a more thorough examination of how environmental consciousness, directly or indirectly,

drives intentions to engage in sustainable consumption behavior. Much evidence supports the direct impact of environmental consciousness on the intention to purchase sustainable products (Andika et al., 2023; Kamalanon et al., 2022; Mamun et al., 2020). However, some previous studies have focused more on highlighting the influence of environmental consciousness as an antecedent of attitude rather than behavioral intention (Echchad & Ghaith, 2022; Mamun et al., 2020). Therefore, in line with the TRA, this study aims to validate the direct influence of environmental consciousness on consumer attitudes and intentions to purchase green cosmetic products through the formulation of the following hypotheses:

H₁: *Environmental consciousness has a significant effect on attitudes*

H₂: *Environmental consciousness has a significant effect on purchase intention*

Subjective Norms

Subjective norms (SN) include individuals' subjective perceptions of social pressures, which may shape their participation in certain behaviors. Influences such as peers, family, or colleagues, coupled with the aspiration to receive positive evaluations from others, intensify their influence on the intention to purchase environmentally friendly cosmetic products (Ali et al., 2022; Limbu et al., 2022; Mamun et al., 2020; Tengli & Srinivasan, 2022), eco-friendly clothing (Leclercq-Machado et al., 2022), and conventional cosmetics (Lu & Chen, 2017). It is rooted in the psychosocial perspective and significantly supports positive attitudes and purchase intentions regarding cosmetic products (Hillhouse et al., 2000). However, previous research has focused more on understanding the influence of subjective norms on purchase intention and is limited to attitudes (Grappe et al., 2021). Therefore, we present the following hypothesis:

H₃: *Subjective norms have a significant effect on attitudes toward green cosmetics*

H₄: *Subjective norms have a significant effect on purchase intention*

Attitude toward Green Cosmetic

Several studies have demonstrated a strong relationship between attitude and intention to purchase green cosmetic products (Ali et al., 2022; Limbu et al., 2022; Mamun et al., 2020; Tengli & Srinivasan, 2022). For instance, (Limbu et al., 2022) discovered a significant and positive correlation between consumer attitudes and the intention to purchase green cosmetic products among young female consumers in Vietnam. Attitudes also influence the willingness of the Malaysian public to buy environmentally friendly skincare products (Mamun et al., 2020). However, inconsistent findings regarding the influence of attitudes on the intention to purchase green cosmetic products have been reported by (Boon et al., 2020), who found that subjective norms did not exhibit a significant relationship to buying natural skin care products in Malaysia. To address this inconsistency, our research aims to clarify this relationship by proposing the following hypotheses:

H₅: *Attitude has a significant effect on the purchase intention*

Although studies have linked environmental consciousness, subjective norms, attitudes towards eco-friendly products, and purchase intention (Echchad & Ghaith, 2022; Grappe et al., 2021; Leclercq-Machado et al., 2022; Mamun et al., 2020), few studies explore this relationship in greater depth, especially in attitude mediation. Some previous studies, such as (Grappe et al., 2021; Leclercq-Machado et al., 2022; Mamun et al., 2020), have only focused on the direct relationship between these variables. This study aims to fill this knowledge gap by exploring the potential mediating role of attitude in linking subjective norms and environmental consciousness to purchase intention. In recognizing the importance of attitude as a potential mediator in this model, the study puts forward the following hypotheses:

H₆: *Attitude mediates the influence of environmental consciousness on purchase intention*

H₇: *Attitude mediates the effect of subjective norms on purchase intention*

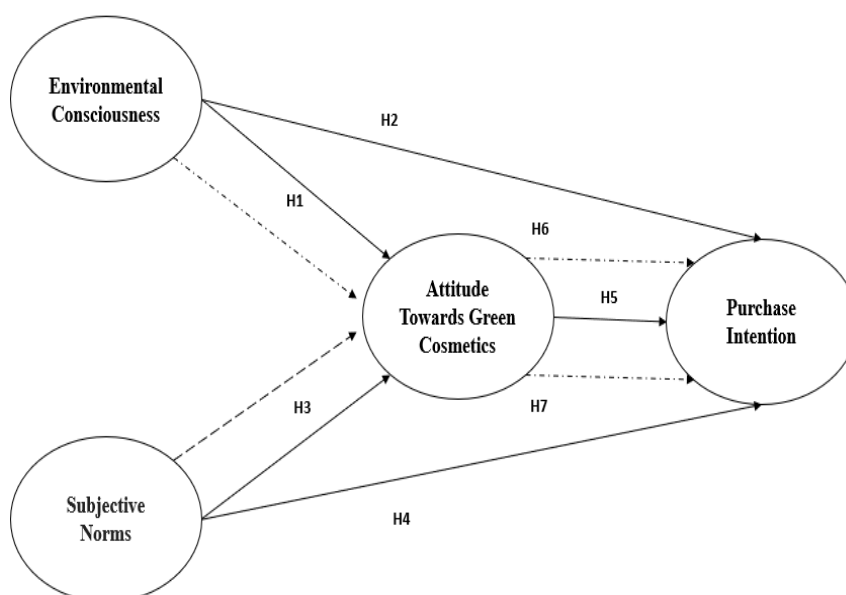


Figure 1. Research Framework

Methodology

This study uses a quantitative approach with a descriptive research design to investigate consumer purchasing behavior towards environmentally friendly cosmetic products in Indonesia. The sample consisted of 305 respondents with an age range of 17 to 58 years. Data was collected through an online questionnaire distributed through the Google Form application, using the Purposive Sampling method on green cosmetics consumers. The final questionnaire consisted of 16 questions on a four-point Likert scale, ranging from strongly disagree (1) to agree (4) strongly. The development of the questionnaire was based on various sources from previous research (Chin et al., 2018; Kapoor et al., 2019; Limbu et al., 2022; Promotosh & Sajedul, 2011; Shimul et al., 2022). The collected data were analyzed using the Partial Least Squares (PLS) method based on the Structural Equation Model (SEM). The evaluation process includes an assessment of

the measurement model (Outer Model), an evaluation of the structural model (Inner Model), and a path coefficient analysis following predetermined guidelines (Hair et al., 2017).

We conducted a mediation regression analysis to examine the indirect influence of an independent variable on a dependent variable through a mediator variable (Agler & De Boeck, 2017). Mediation analysis follows the criteria outlined by (Dastgeer et al., 2020), where variable X affects variables M and Y, and variable M affects variable Y. The Sobel Test was employed to assess the mediator variable's significance. The Sobel Test was conducted using the program provided on the website by Daniel Soper (Soper, n.d.), regarding a critical z-value of > 1.96 (Yay, 2017) and a p-value of < 0.05 (Dastgeer et al., 2020). Below is table 1 and 2 display the operational variables of the study.

Table 1. Operational Research Variables

Variable Names	Item Code	Indicator
Attitude Towards Green Cosmetics (Limbu et al., 2022; Shimul et al., 2022)	ATGC	1. Experience a sense of pride when purchasing green cosmetics.
		2. Eco-conscious products always take precedence.
		3. There's a firm conviction that green cosmetics outperform traditional ones.
		4. When faced with green and conventional cosmetics at the same price, the tendency is towards the green option.
Purchase Intention (Chin et al., 2018)	PI	1. They are likely to prefer green cosmetic items.
		2. Plan to acquire green cosmetics as soon as their existing ones are depleted.
		3. Plan to suggest green cosmetics to peers.
Subjective Norms (Promotosh et al., 2011)	SN	1. The recommendation of a family member can lead to the favored choice of green cosmetics.
		2. Recommendations from friends can incline individuals to opt for green beauty products.
		3. My parents educated me to differentiate between green and conventional cosmetic products.
		4. Friends have helped me understand the distinction between sustainable and regular cosmetics.
		5. Social media is essential in shaping the choice to buy green cosmetic products.
Environmental Consciousness (Kapoor et al., 2019)	EC	1. Choosing green cosmetics can mitigate environmental challenges.
		2. Green cosmetics are a superior choice due to their environmental safety.

Variable Names	Item Code	Indicator
		3. Due to its organic components, green cosmetics are favored.
		4. Selecting green cosmetics supports a more sustainable environment.

Results

Demographic characteristics of the respondents

Table 2. Sample Descriptions

Category	Subcategory	Frequency	%	Cumulative percent
Gender	Men	113	37%	37%
	Female	192	63%	100%
Age	17-27	260	85%	85%
	28-42	41	14%	99%
	43-58	4	1%	100%
Education Level	<High School	10	3%	3%
	High School	79	26%	29%
	Diploma I/II/III/Bachelor's Degree	199	65%	94%
	Master's/Doctoral Degree	17	6%	100%
Income Level	Rp <1 million	141	46%	46%
	Rp 1-2 million	78	25%	71%
	Rp 3-5 million	62	20%	91%
	Rp 6-8 million	14	6%	97%
	Rp >8 million	10	3%	100%

Table 3. Sample Descriptions

Frequency of purchase	Once a month	230	75%	75%
	Every two months	46	15%	90%
	Every three months	2	1%	91%
	Three times a month	15	5%	96%
	Others.	12	4%	100%
The five most used green cosmetics brand	Male		Women	
	Kahf	45	Wardah	66
	Nivea men	24	Npure	31
	Wardah	11	Innisfree	19
	Ms. Glow for Men	7	The Body Shop	16
	Banner, Garnier, Ponds Men	3	Mustika ratu	10

Table 2 and 3 illustrates the number and percentage of samples by gender, age, education level, income level, frequency of purchase, and most frequently used brand.

From the table, the majority of respondents are female (63%), their age is between 17 to 27 years old (85%), have a DI-IV/S1 education (65%), an income of less than 1 million (46%), purchase products once a month (75%), and women tend to use the Wardah brand as their most frequently used (34%). In comparison, men tend to use the Kahf brand more (40%).

Indicator test

The indicator test, also known as the Outer model or measurement model, produces outputs of model validity and reliability measured by criteria such as discriminant validity, composite reliability, and convergent validity, which are explained as follows:

Table 4. Discriminant Validity Test Results (AVE)

Variable	Criteria	AVE
Subjective Norms	> 0.50	0.667
Environmental		0.827
Attitude Toward Green Cosmetic		0.782
Purchase Intention		0.765

Discriminant validity refers to the degree to which a construct is significantly differentiated from other constructs based on empirical standards. This measurement is done through cross-loading between indicators and related constructs. An indicator is considered valid if its association with its construct is more robust than with other constructs. Another alternative to measuring this is through the AVE value, which must be more than 0.50. Based on Table 4, all indicators are considered valid because the AVE value of all variables exceeds 0.50. Similarly, based on Table 5, the discriminant validity test, which measures cross-loading, shows that all indicators are valid because the relationship between the indicator and the related construct is more significant than its relationship with other constructs.

Table 5. Discriminant Validity Test Results (Cross Loading)

	Subjective Norms	Environmental Consciousness	Attitude Toward Green Cosmetic	Purchase Intention
ATGC1	0.555	0.612	0.876	0.609
ATGC2	0.57	0.577	0.882	0.622
ATGC3	0.582	0.631	0.896	0.645
ATGC4	0.511	0.658	0.884	0.553
EC1	0.617	0.912	0.656	0.688
EC2	0.632	0.934	0.648	0.683
EC3	0.586	0.899	0.592	0.63
EC4	0.596	0.891	0.646	0.667
PI1	0.582	0.612	0.556	0.848
PI2	0.651	0.681	0.624	0.898
PI3	0.636	0.631	0.621	0.877
SN1	0.869	0.603	0.572	0.64

	Subjective Norms	Environmental Consciousness	Attitude Toward Green Cosmetic	Purchase Intention
SN2	0.872	0.572	0.516	0.584
SN3	0.791	0.464	0.464	0.552
SN4	0.854	0.525	0.521	0.614
SN5	0.681	0.562	0.479	0.51

Table 6. Composite Reliability Test Results

Variable	Criteria	Composite Reliability
Subjective Norms	> 0.70	0.909
Environmental		0.95
Attitude Toward Green Cosmetic		0.935
Purchase Intention		0.907

The degree of depth within the constructed variable is demonstrated by the indicators of the variable, which are assessed through composite reliability. A construct is considered reliable if its composite reliability value is > 0.70 . Table 6 indicates that all constructs have composite reliability values above 0.70, indicating high consistency and stability in the instrument used. In other words, the reliability of the instrument has been met.

Convergent validity involves the correlation between indicator scores and the associated construct. Convergent indicators are considered valid with a correlation value higher than 0.50. If any indicator does not meet this criterion, it should be removed. A loading factor value > 0.70 is considered excellent, while a value > 0.60 is considered adequate. This study confirms that the minimum acceptable factor loading value is 0.60. If the value is less than 0.60, the value should be excluded. Through the convergent test using outer loading in Table 7, all items show values that meet the requirements of convergent validity, namely values > 0.60 . Therefore, the construct is valid.

Table 7. Outer Loading test results (Convergent Validity)

Code Variable	Variable Latin			
	Subjective Norms	Environmental Consciousness	Attitude Toward Green Cosmetic	Purchase Intention
SN1	0.869			
SN2	0.872			
SN3	0.791			
SN4	0.854			
SN5	0.681			
EC1		0.912		
EC2		0.934		
EC3		0.899		
EC4		0.891		
ATGC1			0.876	
ATGC2			0.882	

Code Variable	Variable Latin			
	Subjective Norms	Environmental Consciousness	Attitude Toward Green Cosmetic	Purchase Intention
ATGC3			0.896	
ATGC4			0.884	
PI1				0.848
PI2				0.898
PI3				0.877

Evaluation of Model's Goodness and Fit

PLS (Partial Least Squares) is a variance-based SEM analysis that aims to test model theory with a focus on prediction studies (Luthfiana et al., 2023). Therefore, researchers developed several measures to indicate the acceptance of the proposed model, such as R square, Q square, SRMR, PLS prediction (Hair et al., 2019), and Goodness of Fit Index (GoF Index) (Henseler & Sarstedt, 2013). In addition, they also check the robustness of the model by testing the linearity of the relationship between variables (Hair et al., 2019; Sarstedt et al., 2020). The following is an explanation and criteria that can be described:

Table 8. R Square and Q Square test results

	R Square	Q Square
Attitude Toward Green Cosmetic	0.536	0.412
Purchase Intention	0.654	0.493

The R square statistical measure illustrates the variation in endogenous variables that can be explained by other exogenous/endogenous variables in the model. According to Hair et al. (2011), we can interpret the R square value qualitatively as follows: 0.25 indicates a low influence, 0.50 indicates a moderate influence, and 0.75 indicates a strong influence. Based on the R Square test results in Table 8, subjective norms and environmental consciousness moderately influence attitudes towards green cosmetics with a value of 0.536. In addition, subjective norms, environmental consciousness, and attitudes towards green cosmetics also moderately influence purchase intention, with a value of 0.654.

Q square describes the accuracy of the prediction measure, which is how well each change in exogenous/endogenous variables can predict endogenous variables. In PLS, this measure is a form of validation to state the suitability of model predictions (predictive relevance). According to Hair et al. (2019), the qualitative interpretation of the Q square value is as follows: 0 (low influence), 0.25 (moderate influence), and 0.50 (high influence). The test results in Table 8 show that the Q square value for the attitude variable towards green cosmetics is 0.412, more significant than 0.25. Therefore, the prediction accuracy in this study is moderate. The same also applies to the Q square value on the purchase intention variable, which is $0.493 > 0.25$, so the prediction accuracy in this study is also moderate.

Table 9. SRMR test results

	Saturated Model	Estimated Model
SRMR	0.052	0.052

SRMR, or Standardized Root Mean Square Residual, assesses the absolute value of the mean residual covariance by converting the sample covariance matrix and the predicted covariance matrix into a correlation matrix. It evaluates the mean value of the difference between the observed and expected correlations as an absolute measure of the criterion (model) fit. A value less than 0.10 is appropriate (Henseler et al., 2014). The value is a measure of fit for PLS-SEM that can be used to avoid model misspecification. We obtained a model estimation result of 0.052 in this study, which means that the model has an acceptable level of fit. The empirical data in this study can explain the influence between variables in the model.

Table 10. GoF Index

Mean Communality	Mean R square	GoF Index
0.579	0.595	0.587

The Goodness of Fit Index (GoF Index) evaluates the overall fit of both the measurement and structural models. This GoF index can only be computed from the reflective measurement model, which is the square root of the geometric mean of communality multiplied by the mean R square. According to Ghazali & Latan (2015), the interpretation of the GoF value is as follows: a GoF value of 0.1 indicates low fit, 0.25 indicates moderate fit, and 0.36 indicates high fit. The GoF Index value in Table 10 is 0.587, thus indicating that the empirical data in this study effectively explains the measurement model with a high fit.

Hair et al. (2019) revealed that PLS is an SEM analysis that aims for prediction. Therefore, researchers need to develop a measure to validate the model's shape to show how good the predictive power of their proposed model is. PLS prediction serves as a form of validation of the power of the PLS prediction test, which shows that PLS results have a better measure of predictive power. Therefore, it must be compared with the basic linear regression (LM) model. The PLS model is said to have predictive power if the RMSE (Root mean squared error) or MAE (mean absolute error) size of the PLS model is lower than the linear regression model. (a) If all measurement items of the PLS model have lower RMSE and MAE values than the linear regression model, then the PLS model has high predictive power. (b) This model has moderate predictive power if most items have lower values. Based on the PLS prediction test results in Table 11, we find that most of the measurement items of the PLS model have lower RMSE and MAE values than the LM (linear regression) model. This indicates that the proposed PLS model has moderate predictive power.

Table 11. PLS Predict test results

	PLS		LM	
	RMSE	MAE	RMSE	MAE
ATGC1	0.7	0.521	0.72	0.534
ATGC2	0.732	0.538	0.731	0.536
ATGC3	0.686	0.505	0.693	0.495
ATGC4	0.652	0.471	0.668	0.477
PI1	0.733	0.532	0.76	0.552
PI2	0.632	0.46	0.637	0.446
PI3	0.639	0.471	0.652	0.479

Hair et al. (2019) state that checking the linearity of the relationship between variables is necessary. The underlying assumption is that the relationship between variables is considered linear. This check is part of the robustness model in SEM PLS. The check is done by testing the squared shape of the variables. Based on the linearity test results in Table 12, it is found that the squared forms of environmental consciousness, subjective norms, and attitudes have no significance on purchase intention. Therefore, it can be concluded that the effect of environmental consciousness, subjective norms, and attitudes on purchase intention is linear, or the linearity effect of the model is met (robust).

Table 12. Linearity Test Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Quadratic Effect 1 -> ATGC	-0.04	-0.039	0.041	0.96	0.337
Quadratic Effect 2 -> ATGC	0.005	0	0.051	0.102	0.919
Quadratic Effect 3 -> PI	0.018	0.02	0.044	0.402	0.688
Quadratic Effect 4 -> PI	0.01	0.012	0.049	0.199	0.843
Quadratic Effect 5 -> PI	0.034	0.031	0.052	0.657	0.511

Hypothesis test results

Analyzing the relationship and influence between latent variables based on objective theory is done through hypothesis testing. The significance of the influence between constructs is tested by evaluating the significant parameter coefficient value and t-statistic. The hypothesis is considered proven if the t-statistic > t table or P-Value < 0.05,

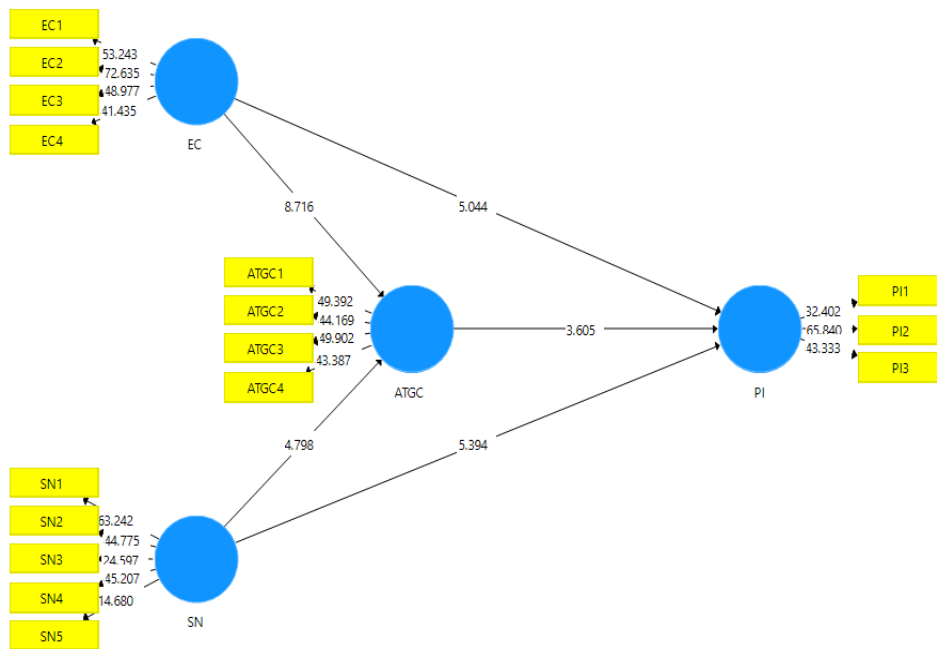


Figure 2. Bootstrapping Model After Indicator Test

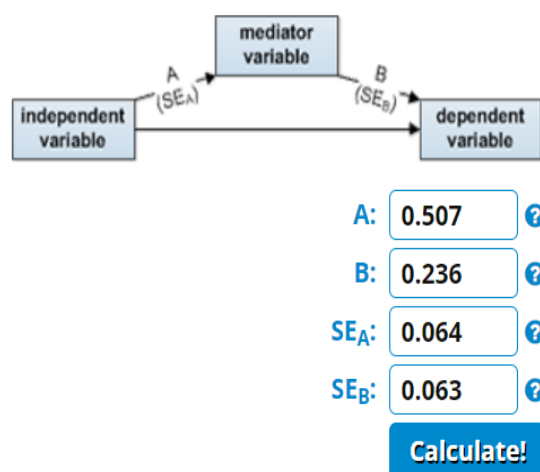
Table 13. Hypothesis Test Results

	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Conclusion
EC -> ATGC	0.507	0.064	7.895	0.000	Accepted
EC -> PI	0.345	0.071	4.879	0.000	Accepted
SN -> ATGC	0.288	0.065	4.466	0.000	Accepted
SN -> PI	0.335	0.067	5.027	0.000	Accepted
ATGC -> PI	0.236	0.063	3.723	0.000	Accepted

Table 13 shows that environmental consciousness and subjective norms directly influence attitudes towards environmentally friendly cosmetics and purchase intention, with a statistical t value > 1.96 and a sig value < 0.05. The direction of the relationship is also positive. Therefore, H1, H2, H3, H4, and H5 are statistically proven.

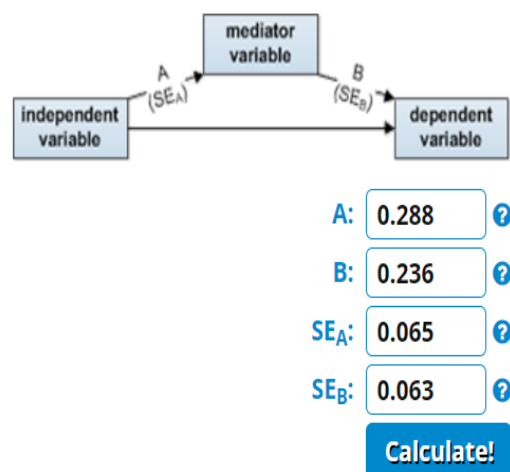
Mediation test results

The results of the mediation test using the Sobel test in Figures 3 and 4 show evidence that attitude significantly mediates the effect of environmental consciousness and subjective norms on purchase intention, with the t value of the Sobel test > 1.96 and v value < 0.05. Therefore, it can be concluded that H6 and H7 are statistically proven.



Sobel test statistic: 3.38649420
 One-tailed probability: 0.00035396
 Two-tailed probability: 0.00070792

Figure 3. Environmental consciousness
 Sobel test results



Sobel test statistic: 2.86064980
 One-tailed probability: 0.00211387
 Two-tailed probability: 0.00422774

Figure 4. Subjective norm Sobel
 test results

Discussion

Integrating environmental consciousness into the TRA model is a focal point of our research, contributing substantially to its development. Many previous studies using the TRA model have delved into understanding the motives behind consumer purchasing behavior in general environmental products, organic food, eco-friendly smartphones, eco-friendly clothing, and electric vehicles (Alzahrani et al., 2019; Kautish et al., 2019; Liu & Tsaur, 2020; Rausch & Kopplin, 2021; Roh et al., 2022). Our focus on Indonesia revealed that incorporating environmental awareness into the TRA model effectively showed a positive correlation between environmental consciousness and attitude and intention to purchase green cosmetics. In addition, our research also highlights that attitude acts as a mediating factor between environmental consciousness and the intention to purchase green cosmetics in the Indonesian context.

The influence of environmental consciousness on purchase intention

The analysis results strongly support the relationship between environmental consciousness and attitudes toward eco-friendly cosmetics. This finding has a significant impact on the understanding of how psychological factors influence consumer preferences for sustainable products. Environmental consciousness influences attitudes towards eco-friendly cosmetics from a psychological perspective. The level of consciousness reflects an individual's knowledge and concern for environmental issues and the impact of consumed products.

Environmentally conscious individuals tend to be sensitive to environmental issues, including the impact of consumption products. A sense of responsibility towards the environment influences attitudes towards environmentally friendly cosmetics. Environmentally conscious individuals tend to feel responsible for choosing products that have a positive impact. A positive attitude towards environmentally friendly cosmetics demonstrates individual efforts to reduce negative impacts and contribute to sustainability.

This finding aligns with previous research by Zhang et al. (2019), which found that environmental consciousness significantly affects attitudes toward green products. This alignment confirms the critical role of environmental consciousness in shaping consumer attitudes toward sustainable products.

This research further explains the psychological factors influencing consumer preferences for sustainable products. The implication for cosmetics companies is to design more effective marketing strategies for green products. This research also demonstrates the potential of environmental consciousness in educating people towards more sustainable consumption.

The influence of environmental consciousness on attitude toward green cosmetic

The results of this study reveal the significant role of environmental consciousness in influencing the purchase intention of environmentally friendly cosmetics. Environmental consciousness is a crucial foundation in sustainable consumer behavior. As individuals become more aware of the consequences of their consumption choices on the environment, they are more likely to take positive action. The findings verify that the higher a person's level of environmental consciousness, the more likely they are to purchase environmentally friendly cosmetics. Environmental consciousness triggers this purchase intention, as individuals highly concerned about the environment are more sensitive to environmental issues in their consumption.

This finding aligns with research conducted by Kamalanon et al. (2022), which revealed environmental consciousness as a significant antecedent factor to the intention to purchase environmentally friendly products. Likewise, a study by Mamun et al. (2020) found that environmental consciousness significantly influences the purchase intention of eco-friendly skincare products among Malaysians. These findings further cement the idea that environmental consciousness is essential in motivating individuals to choose better products for the environment.

In a practical context, these findings provide valuable guidance for the cosmetics industry. Companies should view environmental consciousness as a critical trigger in consumer purchasing decisions. To encourage consumers to be more inclined to purchase environmentally friendly cosmetics, companies need to include environmental messages in their marketing strategies. In addition, precise information on the environmental impact of products should be provided so that consumers can make informed decisions.

The influence of subjective norms on attitude toward green cosmetic

The results of the analysis show that the subjective norm variable has a significant influence on consumer attitudes toward environmentally friendly cosmetics. This finding is consistent with previous research conducted by Chhetri et al. (2021) and Grappe et al. (2021), who also found that subjective norms significantly influence consumer attitudes toward environmentally friendly cosmetic products.

One important implication of this finding is that individuals' perceptions of social norms and influences from their surrounding environment significantly affect how they respond to environmentally friendly cosmetic products. In this case, subjective norms reflect the views and expectations individuals internalize from their social group or environment. Thus, consumer attitudes towards environmentally friendly cosmetics are not only influenced by intrinsic product factors but also by social norms that exist within the consumer community.

This finding also aligns with social psychology theory, which underlines the importance of social conformity and judgments from close people in shaping individual views and behaviors (Krieger et al., 2017). In this context, individuals may feel pressure to conform to existing norms, including preferences for cosmetic products. Suppose the subjective norms in an individual's environment encourage the use of environmentally friendly products. In that case, the individual may be more likely to have a positive attitude towards such cosmetics.

Furthermore, these findings can make a valuable contribution to practitioners and marketers of cosmetic products. By understanding subjective norms' role in shaping consumer attitudes, marketers can design more effective strategies for promoting environmentally friendly cosmetic products. For example, they can develop campaigns emphasizing environmental values and positive norms related to such products to influence consumer attitudes more effectively.

The influence of subjective norms on purchase intention

The results of the research analysis show that subjective norms have a significant influence on the purchase intention of environmentally friendly cosmetics. This indicates that the views and opinions in a person's social environment play a crucial role in shaping their attitude and purchase intention towards cosmetic products that focus on environmental sustainability. In other words, when individuals perceive that those around them encourage green cosmetics, they are more likely to have purchase intentions towards such products.

Subjective norms can also be linked to deeper psychological aspects, such as the need to be accepted and recognized by the surrounding environment (Madsen & Wilson, 2012). Individuals strive to comply with the norms accepted by their group to feel connected and accepted by the environment. In the context of green cosmetics purchase intention, individuals who feel that their friends or social environment value buying environmentally friendly products may feel a more excellent drive to fulfill these expectations.

The results of this study are consistent with the findings of Ali et al. (2022) conducted in Pakistan, showing that subjective norms significantly impact male consumers' purchase intention on green cosmetic products. Likewise, a study by Limbu et al. (2022) found that subjective norms influence young Vietnamese women's intention to buy green cosmetics. This suggests that the influence of subjective norms applies to the current research context and has relevance across cultures and the genders of consumers. These findings reinforce the conclusion that subjective norms have a consistent universal role in shaping purchase intentions for green cosmetics.

The results of this study have important implications in the context of marketing and consumer behavior. By understanding that subjective norms affect green cosmetics purchase intentions, cosmetics companies, and marketers can take steps to capitalize on this social influence in their marketing efforts. Campaigns focusing on the consciousness of the positive impact of green cosmetic products and support from the social environment can be more successful in changing consumer behavior.

The influence of attitude toward green cosmetics on Purchase Intention

The results of the research analysis show that attitudes toward green cosmetics have a significant impact on the purchase intention of green cosmetics. This finding indicates that a positive attitude toward green cosmetics can motivate individuals to have stronger purchase intentions toward these products. These positive attitudes reflect individuals' recognition of environmental values and their concern for the impact of conventional cosmetic products on the environment. In this context, when consumers feel that green cosmetics express their values, they will be more likely to take concrete action in the form of a purchase.

This finding is consistent with previous research from Limbu et al. (2022) in Vietnam and Mamun et al. (2020) in Malaysia. The existence of a significant and positive correlation between consumers' attitudes towards environmentally friendly cosmetics and purchase intention indicates consistency in the influence of attitudes in different contexts. This strengthens the argument that attitude is critical in shaping consumer purchase behavior towards environmentally friendly cosmetic products.

The link between attitude and purchase intention also has broader implications in marketing and communication. Cosmetic companies that focus on environmentally friendly products can use these findings to design more effective marketing campaigns. Developing strategies that promote environmental values and care for the earth can increase consumers' positive attitudes toward products and encourage higher purchase intentions.

The mediating role of attitude on the influence of environmental consciousness on purchase intention

The research analysis results show that attitudes towards green cosmetics are a critical mediator in the relationship between environmental consciousness and purchase intention. In this case, consumers' beliefs and views towards cosmetics that focus on sustainability and care for the environment significantly influence the correlation between

environmental consciousness and purchase intention of green cosmetics. As such, these findings add a new dimension to the consumer behavior literature, particularly regarding attitudes' critical mediating role in sustainable product purchases.

The findings also contain relevant practical implications. In an era where the consciousness of environmental issues is increasing, a deeper understanding of how environmental consciousness can influence the purchase intention of environmentally friendly cosmetics can serve as a foundation for the cosmetics industry in developing more effective marketing strategies. By emphasizing the importance of positive views towards green cosmetics, companies have the opportunity to communicate the environmental values of their products more effectively, thereby attracting consumers with high levels of environmental consciousness.

The mediating role of attitude on the influence of subjective norms on purchase intention

The analysis results in this study consistently show that attitudes towards green cosmetics are essential in linking subjective norms with the purchase intention of green cosmetics. This finding substantively supports the theoretical framework proposed in this study. This result is consistent with previous research, which shows that attitude is a variable capable of mediating the relationship between other factors (Domínguez-Valerio et al., 2019; Sari et al., 2022), such as subjective norms and specific behavioral intentions (Haliman & Tan, 2023). Thus, this finding confirms that attitudes not only directly impact the purchase intention of green cosmetics but also play a role in articulating the impact of subjective norms on purchase intention.

The results of this study have significant implications for practitioners and marketers in the green cosmetics industry. The fact that attitudes towards green cosmetics mediate the influence of subjective norms on purchase intention suggests that marketing efforts should focus on more than just building positive social norms related to purchasing green products. However, it should also consider changing consumer attitudes towards these products. Marketers can design strategies that focus on increasing consumer understanding of the environmental and personal health benefits of green cosmetics, which can then lead to more positive attitude changes.

Conclusion, Recommendations, and Limitations

Conclusion

In this study, the authors explicitly raised the research question: how much influence do environmental consciousness and subjective norms have on the purchase intention of green cosmetics, and does attitude mediate in this dynamic? The research began by identifying gaps in the observed phenomenon and briefly explaining fundamental concepts and hypotheses. A structured survey was implemented as the primary methodology, with data collection and analysis procedures outlined to facilitate in-depth interpretation.

The research findings can be concluded that environmental consciousness is crucial in shaping consumers' positive attitudes and strengthening their intention to purchase green cosmetic products. The psychological factors underlying environmental consciousness amplify consumers' responses to ecological issues, sharpening their awareness of the personal impact of consumption choices. In line with this, subjective norms, as a manifestation of internalized social expectations, also determine attitudes and purchase intentions. These norms shape consumers' behavior by directing their attitudes towards specific products and guiding their purchase intentions, which reflect a desire to fit in and interact harmoniously within their social context. Furthermore, this study identified attitude as an essential mediator in the relationship between environmental consciousness and subjective norms with purchase intention. The practical implications are that the cosmetics industry faces a strategic imperative to cultivate positive consumer attitudes, designing initiatives that raise environmental consciousness and instill pro-environmental norms to garner widespread support for sustainable products.

Recommendations

Here are some suggestions for further research:

The Influence of Cultural Variations on Attitudes Toward Green Cosmetics: Investigating how cultural differences influence attitudes towards eco-friendly cosmetics across different countries. The purpose is to explore whether the observed relationships between environmental awareness, subjective norms, and attitudes towards green cosmetics are consistent across different cultures or whether there are significant variations that should be considered in designing effective marketing strategies.

Long-term Impact of Attitudes on Purchase Behavior: Conduct a longitudinal study to test whether positive attitudes towards eco-friendly cosmetics impact purchase behavior. Track participants' purchasing patterns over an extended period to understand how sustained positive attitudes lead to the purchase of sustainable green cosmetic products.

Interaction between Social Media and Purchase Intention: Studied the role of social media in shaping subjective norms and attitudes toward green cosmetics. Investigate how influencers, peer recommendations, and online communities contribute to attitude formation and subsequent purchase decisions regarding sustainable beauty products.

Cross-Generational Analysis: Analyze how different generations perceive and prioritize eco-friendly cosmetics. Investigate whether attitudes, subjective norms, and purchase intentions vary among different age groups, and consider how generational perspectives can influence marketing strategies.

The Impact of Pricing on Purchase Intentions: Explore how pricing strategies influence the relationship between attitudes and purchase intentions for eco-friendly cosmetics. Investigate whether pricing that reflects the product's environmental benefits enhances attitude's mediating role in this context.

Limitations

While this study provides valuable insights, some limitations need to be recognized:

Limited Generalizability: The study's findings need to be more generalizable due to the need for more diversity in the sample. The results may not apply universally to all consumer segments if participants are from a specific demographic group, such as a particular age group or cultural background.

Social Will Bias: Respondents may give answers they deem socially desirable rather than reflecting their attitudes or intentions. This bias can lead to overestimated correlations between variables, affecting the accuracy of the results.

Limited Factor Coverage: Although the study focused on environmental consciousness, attitudes, and subjective norms, there may be other essential variables not considered in the analysis that could also influence purchase intention, such as economic factors or product availability.

Situational Factors Ignored: Research emphasizes individual psychological factors, ignoring situational influences that may affect purchase intentions. External factors such as price, product availability, and marketing strategies can play an important role.

References

- Agler, R., & De Boeck, P. (2017). On the interpretation and use of mediation: Multiple perspectives on mediation analysis. *Frontiers in Psychology*, 8(NOV), 1–11. <https://doi.org/10.3389/fpsyg.2017.01984>
- Agrawal, M., Kalia, P., Nema, P., Zia, A., Kaur, K., & John, H. B. (2023). Evaluating the influence of government initiatives and social platforms on green practices of Gen Z: The mediating role of environmental awareness and consciousness. *Cleaner and Responsible Consumption*, 8(February), 100109. <https://doi.org/10.1016/j.clrc.2023.100109>
- Agull, A., Campo-gomis, F. J. Del, & S, S. (2019). Environmental consciousness differences between primary and secondary school students. *Journal of Cleaner Production*, 227, 712–723. <https://doi.org/10.1016/j.jclepro.2019.04.251>
- Ahmad, W., Gon, W., Anwer, Z., & Zhuang, W. (2020). Schwartz personal values , theory of planned behavior and environmental consciousness : How tourists' visiting intentions towards eco-friendly destinations are shaped ? *Journal of Business Research*, 110(November 2018), 228–236. <https://doi.org/10.1016/j.jbusres.2020.01.040>
- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In J. Kuhl & J. Beckmann (Eds.), *Action Control: From Cognition to Behavior* (p. Springer-Verlag). Springer-Verlag.
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. <https://doi.org/10.1002/hbe2.195>
- Akturan, U. (2018). How does greenwashing affect green branding equity and purchase

- intention? An empirical research. *Marketing Intelligence and Planning*, 36(7), 809–824. <https://doi.org/10.1108/MIP-12-2017-0339>
- Ali, S., Usama Javed, H. M., Ali, W., & Zahid, H. (2022). Decoding men's behavioral responses toward green cosmetics: an investigation based on the belief decomposition approach. *Journal of Environmental Planning and Management*, 0(0), 1–28. <https://doi.org/10.1080/09640568.2022.2081137>
- Alzahrani, K., Hall-Phillips, A., & Zeng, A. Z. (2019). Applying the theory of reasoned action to understanding consumers' intention to adopt hybrid electric vehicles in Saudi Arabia. *Transportation*, 46(1), 199–215. <https://doi.org/10.1007/s11116-017-9801-3>
- Andika, Luthfiana, D. N., Nadia, & Kartinah. (2023). Green purchase behavior: The role of green advertising, green awareness, and eco-literacy. *IOP Conference Series: Earth and Environmental Science*, 1181(1), 1–6. <https://doi.org/10.1088/1755-1315/1181/1/012025>
- Basumbul, A. N. (2016). *Consumer's Attitude in Mediating the Influence of Green Marketing on the Purchase Intention*. University of Lampung: Lampung, Indonesia.
- Bittar, A. de V. (2018). Selling remanufactured products: Does consumer environmental consciousness matter? *Journal of Cleaner Production*, 181, 527–536. <https://doi.org/10.1016/j.jclepro.2018.01.255>
- Boon, L. K., Fern, Y. S., & Chee, L. H. (2020). Generation Y's Purchase Intention towards Natural Skincare Products: A PLS-SEM Analysis. *Global Business and Management Research: An International Journal*, 12(1), 61–77.
- Chang, D., Gao, D., Wang, X., Men, X., Zhang, P., & Zhang, Z. (2022). Influence mechanisms of the National Pollution Source Census on public participation and environmental consciousness in China. *Journal of Cleaner Production*, 363(May), 132397. <https://doi.org/10.1016/j.jclepro.2022.132397>
- Chhetri, S., Fernandes, Ds., & Baby, S. (2021). Validating Purchase Intentions for Green Cosmetic Products: Applying and Extending theory of Planned Behavior. *Information Technology in Industry*, 9(1), 773–785. <https://doi.org/10.17762/itii.v9i1.198>
- Chin, J., Jiang, B. C., Mufidah, I., Persada, S. F., & Noer, B. A. (2018). The investigation of consumers' behavior intention in using green skincare products: A pro- environmental behavior model approach. *Sustainability (Switzerland)*, 10(11). <https://doi.org/10.3390/su10113922>
- Dastgeer, G., Rehman, A. ur, & Asghar, M. A. (2020). Selection and use of mediation testing methods; application in management sciences. *Business & Economic Review*, 12(3), 1–48. <https://doi.org/10.22547/BER/12.3.1>

- Domínguez-Valerio, C. M., Moral-Cuadra, S., Medina-Viruel, M. J., & Orgaz-Agüera, F. (2019). Attitude as a mediator between sustainable behaviour and sustainable knowledge: An approximation through a case study in the Dominican Republic. *Social Sciences*, 8(10). <https://doi.org/10.3390/socsci8100288>
- Echchad, M., & Ghaith, A. (2022). Purchasing Intention of Green Cosmetics Using the Theory of Planned Behavior: The Role of Perceived Quality and Environmental Consciousness. *Expert Journal of Marketing*, 10(1), 62–71. <https://orcid.org/0000-0002-8792-9271>
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research* (Social Psy). MA: Addison-Wesley. <https://people.umass.edu/aizen/f&a1975.html>
- Fishbein, M., & Ajzen, I. (1983). Understanding attitudes and predicting social behaviors. *The Encyclopedic Dictionary of Psychology*, 41–43.
- Ghazali, E., Soon, P. C., Mutum, D. S., & Nguyen, B. (2017). Health and cosmetics: Investigating consumers' values for buying organic personal care products. *Journal of Retailing and Consumer Services*, 39(August), 154–163. <https://doi.org/10.1016/j.jretconser.2017.08.002>
- Ghozali, I., & Latan, H. (2015). *Partial Least Squares Konsep, Teknik Dan Aplikasi Menggunakan Program Smartpls 3.0 Untuk Penelitian Empiris*. Badan Penerbit UNDIP.
- Golob, U., & Kronegger, L. (2019). Environmental consciousness of European consumers : A segmentation-based study. *Journal of Cleaner Production*, 221, 1–9. <https://doi.org/10.1016/j.jclepro.2019.02.197>
- Grappe, C. G., Lombart, C., Louis, D., & Durif, F. (2021). "Not tested on animals": how consumers react to cruelty-free cosmetics proposed by manufacturers and retailers? *International Journal of Retail and Distribution Management*, 49(11), 1532–1553. <https://doi.org/10.1108/IJRDM-12-2020-0489>
- Grooten, M., & Almond, R. E. . (2018). *Living Planet Report-2018: Aiming Higher*. WWF International.
- Hair, Hult, Ringle, & Sarstedt. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). In *Asia-Pacific Pte. Ltd* (Second). SAGE Publications, Inc.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>

- Haliman, Y., & Tan, P. S. (2023). An Analysis of Theory of Planned Behavior (TPB) on Revisit Intention : Mediating Effect of Attitude to Visit. *International Journal of Economics Development Research (IJEDR)*, 4(2), 344–355.
<https://journal.yrpiiku.com/index.php/ijedr/article/view/2232>
- Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., Ketchen, D. J., Hair, J. F., Hult, G. T. M., & Calantone, R. J. (2014). Common Beliefs and Reality About PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods*, 17(2), 182–209.
<https://doi.org/10.1177/1094428114526928>
- Henseler, J., & Sarstedt, M. (2013). Goodness-of-fit indices for partial least squares path modeling. *Computational Statistics*, 28(2), 565–580.
<https://doi.org/10.1007/s00180-012-0317-1>
- Hillhouse, J. J., Turrisi, R., & Kastner, M. (2000). Modeling tanning salon behavioral tendencies using appearance motivation, self-monitoring and the Theory of Planned Behavior. *Health Education Research*, 15(4), 405–414.
<https://doi.org/10.1093/her/15.4.405>
- Huang, H. C., Lin, T. H., Lai, M. C., & Lin, T. L. (2014). Environmental consciousness and green customer behavior: An examination of motivation crowding effect. *International Journal of Hospitality Management*, 40, 139–149.
<https://doi.org/10.1016/j.ijhm.2014.04.006>
- Jang, H.-W., & Cho, M. (2022). The relationship between ugly food value and consumers' behavioral intentions: Application of the Theory of Reasoned Action. *Journal of Hospitality and Tourism Management*, 50, 259–266.
<https://doi.org/https://doi.org/10.1016/j.jhtm.2022.02.009>
- Kamalanon, P., Chen, J. S., & Le, T. T. Y. (2022). "Why do We Buy Green Products?" An Extended Theory of the Planned Behavior Model for Green Product Purchase Behavior. *Sustainability (Switzerland)*, 14(2), 1–28.
<https://doi.org/10.3390/su14020689>
- Kapoor, R., Singh, A. B., & Misra, R. (2019). Green Cosmetics - Changing Young Consumer Preference and Reforming Cosmetic Industry. *International Journal of Recent Technology and Engineering*, 8(4), 12932–12939.
<https://doi.org/10.35940/ijrte.d6927.118419>
- Kautish, P., Paul, J., & Sharma, R. (2019). The moderating influence of environmental consciousness and recycling intentions on green purchase behavior. *Journal of Cleaner Production*, 228, 1425–1436.
<https://doi.org/10.1016/j.jclepro.2019.04.389>
- Kennedy, E. H., Beckley, T. M., McFarlane, B. L., & Nadeau, S. (2009). Why we don't "walk the talk": Understanding the environmental values/behaviour gap in Canada. *Human Ecology Review*, 16(2), 151–160.

- Kerber, J. C., de Souza, E. D., Fettermann, D. C., & Bouzon, M. (2023). Analysis of environmental consciousness towards sustainable consumption: An investigation on the smartphone case. *Journal of Cleaner Production*, 384(November 2022), 135543. <https://doi.org/10.1016/j.jclepro.2022.135543>
- Khaleeli, M., & Jawabri, A. (2021). The effect of environmental awareness on consumers' attitudes and consumers' intention to purchase environmentally friendly products: Evidence from United Arab Emirates. *Management Science Letters*, 11, 555–560. <https://doi.org/10.5267/j.msl.2020.9.011>
- Kim, & Lee. (2023). Environmental Consciousness, Purchase Intention, and Actual Purchase Behavior of Eco-Friendly Products: The Moderating Impact of Situational Context. *International Journal of Environmental Research and Public Health*, 20(7). <https://doi.org/10.3390/ijerph20075312>
- Krieger, M. A., Chung-YAn, greg A., & TowSon, S. M. J. (2017). Social Psychology Theory. *Applied Social Psychology: Understanding and Addressing Social and Practical Problems*, 27–44.
- Leclercq-Machado, L., Alvarez-Risco, A., Gómez-Prado, R., Cuya-Velásquez, B. B., Esquerre-Botton, S., Morales-Ríos, F., Almanza-Cruz, C., Castillo-Benancio, S., Anderson-Seminario, M. de las M., Del-Aguila-Arcentales, S., & Yáñez, J. A. (2022). Sustainable Fashion and Consumption Patterns in Peru: An Environmental-Attitude-Intention-Behavior Analysis. *Sustainability (Switzerland)*, 14(16), 1–18. <https://doi.org/10.3390/su14169965>
- Leonidou, C. N., & Skarmeas, D. (2015). Gray Shades of Green: Causes and Consequences of Green Skepticism. *Journal of Business Ethics*, 144(2), 401–415. <https://doi.org/10.1007/s10551-015-2829-4>
- Limbu, Y. B., Pham, L., & Nguyen, T. T. T. (2022). Predictors of Green Cosmetics Purchase Intentions among Young Female Consumers in Vietnam. *Sustainability (Switzerland)*, 14(19), 1–15. <https://doi.org/10.3390/su141912599>
- Lin, Y., Yang, S., Hanifah, H., & Iqbal, Q. (2018). An exploratory study of consumer attitudes toward green cosmetics in the uk market. *Administrative Sciences*, 8(4), 1–14. <https://doi.org/10.3390/admsci8040071>
- Liobikienė, G., & Bernatoniene, J. (2017). Why determinants of green purchase cannot be treated equally? The case of green cosmetics: Literature review. *Journal of Cleaner Production*, 162, 109–120. <https://doi.org/10.1016/j.jclepro.2017.05.204>
- Liu, H. Te, & Tsaur, R. C. (2020). The theory of reasoned action applied to green smartphones: Moderating effect of government subsidies. *Sustainability (Switzerland)*, 12(15), 1–15. <https://doi.org/10.3390/su12155979>
- Lu, Y.-C., & Chen, K.-N. (2017). Consumer Knowledge, Brand Image, Openness to Experience and Involvement: A Case in Cosmetic Consumption. *Journal of Cosmetics, Dermatological Sciences and Applications*, 07(04), 349–361.



<https://doi.org/10.4236/jcdsa.2017.74031>

- Luthfiana, D. N., Andika, A., Najmudin, M., & Purwanto, J. (2023). Socialization of Taxation As A Moderating Variable in The Application of The Theory of Planned Behavior to Taxpayer Compliance. *Dinasti International Journal of Economics, Finance & Accounting*, 4(3), 434–453.
- Madsen, S. R., & Wilson, I. K. (2012). Humanistic Theory of Learning: Maslow. In N. M. Seel (Ed.), *Humanistic Theory of Learning: Maslow*. Springer US.
https://doi.org/10.1007/978-1-4419-1428-6_1022
- Mamun, A. Al, Nawi, N. C., Hayat, N., & Zainol, N. R. B. (2020). Predicting the purchase intention and behaviour towards green skincare products among Malaysian consumers. *Sustainability (Switzerland)*, 12(24), 1–18.
<https://doi.org/10.3390/su122410663>
- Mishra, D., Akman, I., & Mishra, A. (2014). Computers in Human Behavior Theory of Reasoned Action application for Green Information Technology acceptance. *Computers in Human Behavior*, 36, 29–40.
<https://doi.org/10.1016/j.chb.2014.03.030>
- Mutia, A. (2022). *Makin Meroket, Pendapatan Produk Kecantikan dan Perawatan Diri di RI Capai Rp111,83 Triliun pada 2022*. Databoks.Katadata.Co.Id.
- Nam, C., Dong, H., & Lee, Y. A. (2017). Factors influencing consumers' purchase intention of green sportswear. *Fashion and Textiles*, 4(1).
<https://doi.org/10.1186/s40691-017-0091-3>
- Newton, J. D., Tsarenko, Y., Ferraro, C., & Sands, S. (2015). Environmental concern and environmental purchase intentions: The mediating role of learning strategy. *Journal of Business Research*, 68(9), 1974–1981.
<https://doi.org/10.1016/j.jbusres.2015.01.007>
- Parashar, S., Singh, S., & Sood, G. (2023). Examining the role of health consciousness, environmental awareness and intention on purchase of organic food: A moderated model of attitude. *Journal of Cleaner Production*, 386(November 2022), 135553.
<https://doi.org/10.1016/j.jclepro.2022.135553>
- Pena-Garcia, N., Gil-Saura, I., Rodriguez-Orejuela, A., & Siqueira-Junior, J. R. (2020). Purchase intention and purchase behavior online: A cross-cultural approach. *Heliyon*, 6(6). <https://doi.org/10.1016/j.heliyon.2020.e04284>
- Promotosh, B., & Sajedul, I. (2011). *Young consumers' purchase intentions of buying green products. A study based on the theory of planned behavior*. Umea School of Business, Spring semester.
- Promotosh, B., Sajedul, I. M., & Vladimir, V. (2011). Young consumers' purchase intentions of buying green products: A study based on the Theory of Planned Behavior. In *Umeå University* (Issue May).

<https://doi.org/10.13140/RG.2.1.2068.3684>

- Quoquab, F., Mohammad, J., & Sukari, N. N. (2019). A multiple-item scale for measuring "sustainable consumption behaviour" construct: Development and psychometric evaluation. *Asia Pacific Journal of Marketing and Logistics*, 31(4), 791–816. <https://doi.org/10.1108/APJML-02-2018-0047>
- Rausch, T. M., & Kopplin, C. S. (2021). Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing. *Journal of Cleaner Production*, 278, 123882. <https://doi.org/10.1016/j.jclepro.2020.123882>
- Roh, T., Seok, J., & Kim, Y. (2022). Unveiling ways to reach organic purchase: Green perceived value, perceived knowledge, attitude, subjective norm, and trust. *Journal of Retailing and Consumer Services*, 67(March). <https://doi.org/10.1016/j.jretconser.2022.102988>
- Sari, R. L., Habibi, A. B., & Hayuningputri, E. P. (2022). Impact of Attitude, Perceived Ease of Use, Convenience, and Social Benefit on Intention to Use Mobile Payment. *Asia Pacific Management and Business Application*, 011(02), 143–156. <https://doi.org/10.21776/ub.apmba.2022.011.02.2>
- Sarstedt, M., Ringle, C. M., Cheah, J. H., Ting, H., Moisescu, O. I., & Radomir, L. (2020). Structural model robustness checks in PLS-SEM. *Tourism Economics*, 26(4), 531–554. <https://doi.org/10.1177/1354816618823921>
- Shah, S. K., Zhongjun, T., Sattar, A., & XinHao, Z. (2021). Consumer's intention to purchase 5G: Do environmental awareness, environmental knowledge and health consciousness attitude matter? *Technology in Society*, 65(March), 101563. <https://doi.org/10.1016/j.techsoc.2021.101563>
- Shimul, A. S., Cheah, I., & Khan, B. B. (2022). Investigating Female Shoppers' Attitude and Purchase Intention toward Green Cosmetics in South Africa. *Journal of Global Marketing*, 35(1), 37–56. <https://doi.org/10.1080/08911762.2021.1934770>
- Soper, D. (n.d.). *Calculator: Sobel Test For The Significance Of Mediation*. <https://www.DanielSoper.Com/>. Retrieved July 8, 2023, from <https://www.danielsoper.com/statcalc/calculator.aspx?id=31>
- Statista. (2022). *Global market value for natural and organic cosmetics and personal care from 2020 to 2031*. <https://www.statista.com/statistics/673641/global-market-value-for-natural-cosmetics/>
- Tengli, A., & Srinivasan, S. H. (2022). An Exploratory Study to Identify the Gender-Based Purchase Behavior of Consumers of Natural Cosmetics. *Cosmetics*, 9(5). <https://doi.org/10.3390/cosmetics9050101>
- Van Hulst, F. J., & Posthumus, H. (2016). Understanding (non-) adoption of Conservation Agriculture in Kenya using the Reasoned Action Approach. *Land Use Policy*, 56, 303–314. <https://doi.org/10.1016/j.landusepol.2016.03.002>

- Wang, J., Shen, M., & Chu, M. (2021). Why is green consumption easier said than done? Exploring the green consumption attitude-intention gap in China with behavioral reasoning theory. *Cleaner and Responsible Consumption*, 2(March), 100015. <https://doi.org/10.1016/j.clrc.2021.100015>
- Xu, X., Wang, S., & Yu, Y. (2019). Consumer's intention to purchase green furniture: Do health consciousness and environmental awareness matter? *Science of the Total Environment*, 704, 135275.
- Yang, S., Li, L., & Zhang, J. (2018). Understanding consumers' sustainable consumption intention at China's Double-11 online shopping festival: An extended theory of planned behavior model. *Sustainability (Switzerland)*, 10(6). <https://doi.org/10.3390/su10061801>
- Yay, M. (2017). the Mediation Analysis With the Sobel Test and the Percentile Bootstrap. *International Journal of Management and Applied Science*, 3(2), 978–993.
- Zhang, L., Fan, Y., Zhang, W., & Zhang, S. (2019). Extending the theory of planned behavior to explain the effects of cognitive factors across different kinds of green products. *Sustainability (Switzerland)*, 11(15), 1–17. <https://doi.org/10.3390/su11154222>
- Zhu, Y., Wen, X., Chu, M., & Sun, S. (2022). Consumers' intention to participate in food safety risk communication: A model integrating protection motivation theory and the theory of reasoned action. *Food Control*, 138(February), 108993. <https://doi.org/10.1016/j.foodcont.2022.108993>
- Zollo, L., Carranza, R., Faraoni, M., Díaz, E., & Martín-Consuegra, D. (2021). What influences consumers' intention to purchase organic personal care products? The role of social reassurance. *Journal of Retailing and Consumer Services*, 60(December 2020). <https://doi.org/10.1016/j.jretconser.2020.102432>

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Original Research

Moderating Effect of Dividend Policy on the Relationship Between Profitability and Firm Value of Listed Banks in Nigeria

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Abstract

Past studies have presented inconclusive results on the relationship between profitability and firm value, there is a need to take into consideration a moderating variable to strengthen the relationship. This study therefore, introduces dividend policy as moderator to examine its effect on the relationship between profitability and firm value of listed deposit money banks in Nigeria. The study adopted the Ex Facto-research design and the study used ten years, from 2012 to 2021. The study's population consisted of 15 listed banks on the floor of the Nigeria Exchange Group, and 12 were selected as study samples after filtering time frame. Secondary data were collected from audited financial report and accounts of the sample banks and the Nigeria Exchange Group's website. STATA was used to analyze the data, and the results revealed a negative direct link between profitability as assessed by return on assets and return on equity and firm value as measured by market value added. Furthermore, a higher dividend policy ratio strengthens the relationship between profitability and firm value. We add evidence that the dividend policy acts as a pure moderator in the banking industry. However, based on the findings, it is suggested that the regulatory authorities develop post-dividend payment legislation that can effectively contribute to the firm's dividend policy decision. The findings highlight the importance of profitability and dividend policy in maximizing corporate value in the banking industry.

Keywords: Dividend policy, Firm value, Information asymmetry and signaling, Profitability.

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Introduction

Firm value is critical because increased shareholder wealth follows increased Firm value. The higher the stock price, the greater the company's worth. To increase overall business value, investors delegate management to specialists (Tahu & Susilo, 2017). Businesses in and outside of Nigeria strive to increase firm value in order to continue operating in such manner, the board which has the trust of the proprietors' endeavors to strive to accomplish this objective. Effective management of a company's assets, including the formulation of strategic decisions, is essential for the generation of added value by management (Sudiyatno et al., 2021). Moreover, the industry is currently characterized by fierce rivalry among businesses. Since every business is driven by competition to perform even better, the objective can still be reached. The main purpose of a business is to increase the wealth of its owners, or shareholders. The importance of the firm's worth cannot be overstated, as it is a direct reflection of the company's success and may affect how investors see the firm. In other words, firm value is essential because, as stated by (Tahu & Susilo, 2017) increased prosperity for shareholders is directly correlated with a rise in the value of the company.

The ability to turn a profit is a key indicator of a business's health. Profitability is the result of various corporate policies and decisions, as explained by Brigham and Houston (2006) and quoted by (Tahu & Susilo, 2017). In this analysis, profitability is measured in terms of return on assets (ROA), return on equity (ROE), and earnings per share (EPS).

ROA ratio is a metric used to evaluate the efficiency with which companies can generate profits from the available assets. It measures the percentage of income earned from all business operations and investments in all business operations and investments annually after taxes. ROA shows what has happened to the historically acquired resources of a company. It gives an idea of how efficiently management uses assets to generate income. An increased ROA in percentage terms indicates a more efficient use of the company's resources.

Also, ROE gauges a company's success in relation to the investment its owners or shareholders made. Calculating the return on equity involves weighing net income against common stock equity. In general, a higher ROE indicates a better rate of return on the company's investments, whereas a lower ROE indicates a lower rate of return. Before deciding whether or not to invest, a potential investor should examine the ROE of the intended company. The ability to pay dividends and the stock price of a corporation rise in direct proportion to the level of profits.

Furthermore, EPS is a financial ratio in which the net income available to ordinary shareholders is divided by the average amount of shares outstanding over a period of time. The EPS formula indicates how a company can generate net profits for ordinary shareholders. This guide describes in detail the EPS formula.

Tahu and Susilo (2017) and Akhmadi and Januarsi (2021) noted that dividend policy is a moderating factor that affects how profitable a company's value is. This is because many parties, including shareholders, creditors, and other externals are interested in the

information released by the firm, pay close attention to the dividend policy. Dividends have or include information regarding the future prospects of the firm. The firm's success would be judged better with more dividends paid out to shareholders, and ultimately, the best evaluation of the company would be one based on the stock price.

We begin by investigating the connection between ROA, ROE, and EPS and the value of a corporation. Increased profitability is good for a company's long-term success, which in turn benefits the company's shareholders. In addition, companies with high profits tend to be more trusted by investors, which boosts their worth. There has been a favorable correlation between profitability and firm value in prior empirical studies in many industries (Akhmadi and Januarsi, 2021; Chen and Chen, n.d.; Liow, (2010) and Hirdinis (2019) found no significant effect on the relationship between profitability and firm value, in contrast to earlier research by Handoko (2017), which revealed a negative association between the two. In light of contradictory results and the paucity of research that accounts for the moderating influence of dividend policy, it is worthwhile to revisit the relationship between profitability and firm value. To address this gap, our research focuses on the banking sector of the Nigerian capital market and introduces moderating variables.

Dividend policy (DP) is also being investigated as a possible mediator between firm profitability and value. This analysis implies that dividend policy may increase the profitability and firm value link since dividends are a long-term return that investors must prioritize Akhmadi and Januarsi (2021); Ghalandari (2013); Fairchild et al. (2014) and Thanatawee (2014). If they are confident in the dividend performance in the current year, they can increase their investment to capitalize on growing profitability in the coming years. The dividend policy of a corporation may benefit its value and increase its correlation with profitability. Furthermore, when analyzing the connection between profitability and firm value, researchers such as Nwamaka and Eze (2017) and Morakinyo et al. (2018) did not account for the moderating influence of DP, either as a pure or quasi-moderator. By using a hierarchical approach, (Akhmadi & Januarsi, 2021) determine if DP is a pure or quasi-moderator of the connection between profitability and firm value.

The results from the prior literatures shows that an inconsistent finding have been found in earlier investigations both within and outside the country and some of these studies include Gbalam and Uzochukwu, (2020), Andabai, (2020), Virginus, (n.d.) and Koleosho et al., (2022) look at the moderating effect of DP and share prices of quoted firms in Nigeria without incorporating profitability, Odum et al., (2019) also look at the dividend payout and firm value. This inspired the author to carry out more study on the moderating impact of DP on profitability and firm value in the banking sector for ten years spanning from 2012 to 2021. The banking sector not only manages payment traffic and acts as an intermediary institution, but it also functions as a vehicle for conveying monetary policy because of the interest in investing in banking company shares. Investment decision-makers in the banking sector and individual investors stand to benefit from this study's projected improved generalizability compared to previous studies. The current study takes into account DP as a moderating variable in influencing the link among profitability and firm value because the results of earlier studies are inconsistent with the elements that influence firm value. This is because direct and indirect influences on company value could have contributed to the discrepancy. Therefore, the purpose of this research is to examine how DP affects the profitability and

firm value of publicly traded deposit money banks (DMBs) in Nigeria. Here is how the rest of the paper is structured: Section 2 examine the relevant literature and theoretical framework; Section 3 describe the methodology of the study. The findings are presented in Section 4, while a conclusion and recommendations are presented in Section 5.

Objectives of the Study

The specific objectives of the study are:

- i. To assess the effect of return on assets on firm value of listed DMBs in Nigeria.
- ii. To evaluate the effect of return on equity on firm value of listed DMBs in Nigeria.
- iii. To examine the effect of earnings per share on firm value of listed DMBs in Nigeria.
- iv. To determine the moderating effect of dividend policy on relationship between ROA, ROE, EPS and FV of listed DMBs in Nigeria.

Hypotheses of the Study

In accordance with the study's aims, the following hypotheses were developed and tested in null form:

H₁: ROA has no significant effect on FV of listed DMBs in Nigeria.

H₂: ROE has no significant effect on FV of listed DMBs in Nigeria.

H₃: EPS has no significant effect on FV of listed DMBs in Nigeria.

H₄: DP Moderates relationship between ROA, ROE, and EPS and FV of listed DMBs in Nigeria.

Literature Review and Theoretical Framework

This section analyses the conceptual review, theoretical frameworks and empirical studies that have been conducted to determine the impact of dividend policy on profitability and firm value.

Conceptual framework

Figure 1 presents the study's conceptual framework.

Moderator

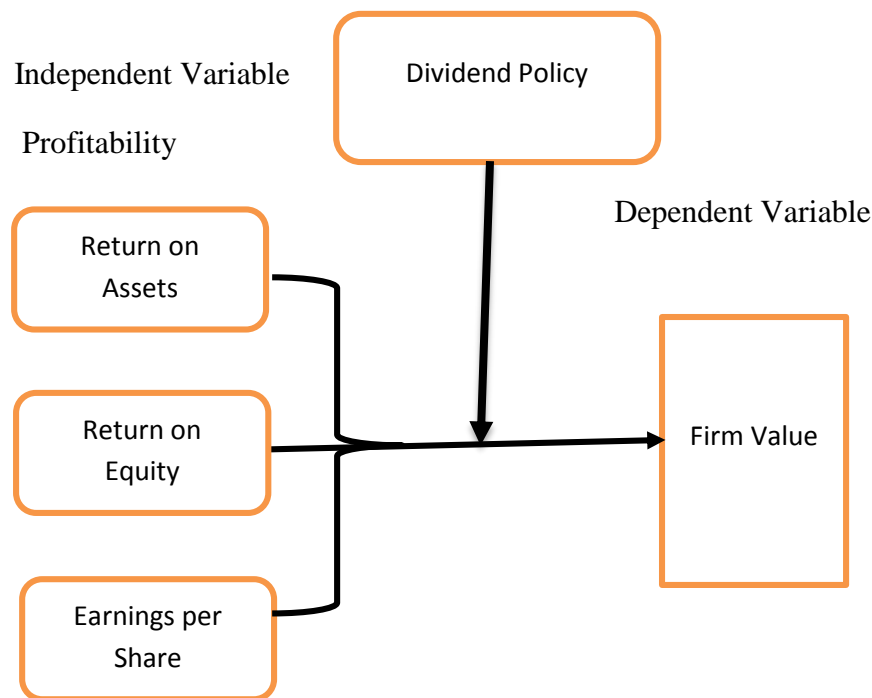


Figure 1: *Schematic representation of the conceptual framework*

Source: The conceptual framework of the study was adapted from the work of Sudiyatno et al., (2020) with some modifications.

Figure 1 shows the independent variable (profitability proxies by ROA, ROE and EPS) and its relationship with the dependent variable (FV). This relationship is moderated by DP to either strengthen or weaken the relationship. This will confirm the role DP plays in the link between profitability and FV.

Concept of Profitability

Profitability, according to Morakinyo et al., (2018) is what decides whether a company remains in operation. He asserted that a company's capacity for profitability is its capacity for making a profit. Therefore, a profit is the amount of company income that remains after all expenditures associated with that revenue have been paid for a particular period. In the view of investors, a firm is worth more if its profits are higher, and investors respond positively to a rise in stock prices by bidding up the price of the company's shares on the market (Yanti & Darmayanti, 2019). This contradicts the findings of Pribadi, (2018) and Nugroho & Abdani, (2017), which found that profits have no bearing on a company's worth. The capitalization strategy was heavily influenced by the prior period's profit margins. Guna & Sampurno, (2018) found empirical evidence that profitability influences the capital structure. Septiani and Suryana, (2018) found no correlation between profitability and capital structure.

Concept of Firm value

The stock price of a firm is a good proxy for the value of the company, which is defined as investors' estimates of the company's prospects for future profitability. There is growing pressure on the firm to address sustainability, social responsibility, and corporate governance concerns, when trying to increase a company's worth, it's crucial to keep shareholders informed and involved. The market value of a company's shares reflects the choices made by management in terms of where and how much money should be invested. When stock prices go up, investors are optimistic about the future of the companies involved (Reschiwati et al., 2020).

Concept of Dividend Policy

According to Pandey, (2005), a dividend is the portion of a company's net earnings that the board of directors recommends be distributed to shareholders. It is typically stated as a fixed percentage of the company's common stock. The dividend policy of a firm is its established set of guidelines for distributing its earnings to its stockholders. Some research suggests that shareholders are less concerned about dividends than they once were because of the ease with which they can liquidate a portion of their equity holdings. It is a measuring policy that addresses the question of whether to pay dividends and when they should be paid. According to Morakinyo et al., (2018), a firm's dividend policy refers to the choice between paying out all or a portion of its profits as dividends to shareholders or investing a portion of those profits back into the company.

Review of related Empirical literature

How effectively a business converts its resources into cash serves as a gauge of its profitability. Investors place a premium on profitability because it is perceived as a proxy for the likelihood of a positive return on investment. Profitability has been found to have a positive effect on firm value (PBV) by a number of researchers, including Manurung and Suhadak, (2014), Arifianto and Chabachid, (2016), Charumathi and Murali, (2016), Data et al., (2017), and Sudiyatno et al., (2021). As a result, the stock values of profitable corporations tend to rise. Profitability has traditionally been a key consideration when making financial decisions, and Chen and Chen (2011) looked into the factors that affect this. The greater a company's profitability, the more profit it generates that may be distributed to shareholders, and the greater its value. As a result, profitability has a majorly favorable effect on the value of a company. According to the pecking order theory, a company's profitability has a large negative effect on its leverage because profitable businesses do not need to rely too heavily on external funding.

Tahu and Susilo, (2017) investigated the impact of liquidity, leverage, and profitability on company value, using dividend policy as a moderating variable. The study's population consists of all manufacturing enterprises listed on the BEI. Saturated sampling was adopted, and the number of samples is a sample of 30 consecutive dividends from manufacturing businesses gathered from the Indonesian Stock Exchange and ICMD. Analytical approaches and moderated multiple regression analysis were utilized in hypothesis testing investigations using the application tool SPSS (Statistical Product and Service Solutions). Profitability has a considerable positive effect on FV, according to the

findings, and DP does not significantly reduce the effect of profitability on FV. The previous study looked at Indonesian companies, but the present study looks at Nigerian enterprises.

Nwamaka and Eze, (2017) look at potential dividend policy implications for business value. The research looks at 10 listed firms between 1995 and 2015. With MPS as the dependent variable and EPS and Dividend Per Share as the independent variables, multiple regression analysis is the methodology used for primary and secondary data analyses. R² is used as the coefficient of determination to assess the information gathered from the 10 firms under study and the Nigerian stock exchange. The research proves that dividends are an effective signal and that dividend policy has a substantial effect on the value of public limited corporations.

The impact of the dividend payout ratio on company value was studied by Odum et al., (2019). Companies trading on the Nigerian Exchange Group (NXG) were used to examine the effects of other factors on business value. This research looked at the relationship between the firm's value and its profitability and dividend policy ratio. The researchers employed panel ordinal least squares regression methods to examine the data. Breweries and beverage companies listed on the NXG between 2007 and 2016 made up the study's sample. Based on the results, it can be concluded that the profitability ratio significantly affects the value of a company. This demonstrates that in the case of publicly traded Nigerian breweries and beverage companies, only profit after tax is a key driver of company value. However, the research implies that corporate managers who wish to raise firm value should prioritize methods that boost the company's leverage ratio and maximize profit after taxes. It is possible to introduce moderating variables into the current study, which focuses on deposit money institutions rather than breweries and beverage industries. The research has also fallen behind schedule by a few years.

Ugwu et al. (2020) evaluate the dividend policy and financial results of companies listed on the NGX consumer products exchange using a multiple regression model. For the years 2015–2019, data from ten publicly traded consumer product companies was collected at random. We employed dividend pay-out ratio (DPR) and DPS to describe dividend policy in the study and ROE to measure company effectiveness. The findings revealed that dividend policy proxies had a positive connection with return on equity. DPS and company performance had a statistically significant positive association, but not DPR or profits per share.

Hossin and Ahmed, (2020) studied the relationship between DP and stock price (SP) volatility in Bangladesh's financial sector from 2009 to 2017. Ten different companies' worth of data was analyzed using a mixed-methods experimental strategy with fixed and random effects models. One of the factors is the DPR, which separates dividends paid in cash from those paid in shares of stock. The effects of cash dividends and stock dividends on SP volatility were investigated, and the results showed that dividends of both sorts have a positive effect on volatility. The research also revealed that investors in Bangladesh would rather receive dividends in the form of stocks than cash. Stock dividends increase in value over time, increasing the potential future profit for shareholders. The DPS and market price per share were studied by Koleosho et al., (2022) to determine if there is a significant relationship between the two from an information

efficiency aspect. The model used was fixed effects to evaluate pooled data for 57 companies that was collected between 2008 and 2019. According to the results of the research, this is crucial data for forecasting stock price movements. Therefore, it was suggested that timely dividend payments and information dissemination enhance the long-term viability of shareholders' wealth.

Akhmadi and Januarsi, (2021) investigated the causes of the paradoxical disconnection between company worth and profits. In particular, it examines whether dividend policy affects the connection between business value and profitability by identifying the nature of the moderating variables. From 2010 to 2019, they used a KEHATI-recorded index of companies that had demonstrated their commitment to sustainable and responsible investment (SRI). Using a hierarchical moderating analysis, the regression results show that there is a positive and direct association between profitability and company value. The correlation between profits and a company's worth is bolstered by a higher DPR. While this investigation focuses on listed deposit money banks in Nigeria, they employ listed companies in Indonesia that engage in sustainable and responsible investment.

The impact of corporate governance on the link between dividend policy, capital structure, and firm value was investigated by Mubaraq et al., (2021). Purposive sampling was used to collect secondary data from 64 manufacturing businesses listed on the Indonesian Stock Exchange between 2014 and 2018. Inferential analysis utilizing Warp PLS Software is employed here. A favorable correlation between dividend policy and firm valuation was discovered in this analysis. In order to determine whether or not profitability acts as a moderating element, Sudiyatno et al., (2021) look into the effects of company growth and capital structure on firm value. In this analysis, growth and capital structure are the independent variables, and profitability is the moderating one. During the study period of 2016–2018, the sample consisted of companies listed on the IDX that operate in the manufacturing sector. Multiple regression was used to analyses panel data, which is a blend of cross-sectional and time-series data. The results show that a company's profitability positively affects its market value. While the present study focuses on Nigeria, the previous one looked specifically at Indonesia.

Koleosho et al., (2022) investigate the link between dividend policy and stock price volatility for a sample of companies listed on the NGX. The volatility was measured using the EGARCH model and Ex-Post facto research design was also adopted. Data for this panel came from 49 out of a total of 162 businesses that were traded on the NXG between 2010 and 2020. The study indicated a highly significant link between DP and SPV. The regression result show that DP have insignificant negative effects on SPV. The study confirmed that dividend policy significantly affected the volatility of stock prices. Investors should look for publicly traded companies with a high and stable payout ratio and companies that place a premium on dividend payments. In contrast to the first study, the second one accounted for a moderating influence.

Information Asymmetry and Signaling Theory

Myers and Majluf, (1984) proposed the idea that there is an information asymmetry between insiders (managers) and outsiders (investors, creditors, etc.), with insiders having a more complete picture of the company's health. Therefore, potential investors from the

outside do not have the same understanding of the company's possibilities and hazards. "Signaling theory" Brigham and Houston, (2006); Reschiwati et al., (2020) describes an organization's actions that are meant to express to shareholders how senior management thinks about the company's future prospects. The signal hypothesis asserts that workers below the managerial level also hold key information about an organization's viability and future. Financials and projections for the future are available to shareholders. Managers who employ debt to fund operations do so in the expectation that the firm's stock price will rise as a result of the market's reaction to their signal that business is strong. The manager will inform the public, specifically the investors, of this information. Managers see a higher debt ratio as an indicator of long-term confidence since it indicates the company is financially stable. The value of the company is expected to rise as a result of investors recognizing these indications and bidding up the price of the stock. Profitability and firm value were examined using the theory by Sudiyatno et al., (2021), who discovered a strong positive link that was consistent with the hypothesis.

Methodology

This study used an Ex-Post Facto research design. Ex-Post Facto aims to identify the factors linked with specific occurrences, situations, events, or behaviors by studying past events or existing data for likely causal factors. That is, data were obtained after the event or phenomenon under examination had occurred, hence the term Ex-Post facto. Thus, an ex post facto or causal-comparative research design was used to describe the profitability and FV: the moderating effect of DP of listed deposit money banks in Nigeria using existing data from the financial statements of the quoted banks that the researcher could not manipulate or alter. In addition to the ex-post facto research approach, the study used a correlational research design with both descriptive and inferential statistics using panel regression analysis.

The population for this study consists of all the listed DMBs reported in the NGX from 2012 to December 31, 2021. The population consisted of all fourteen (14) listed DMBs companies in Nigeria, with twelve (12) chosen as the sample size and census sampling technique. Each of the twelve deposit money institutions was purposefully chosen on the availability and completeness of the data collection for the investigated period (2012–2021). In addition, recently listed banks were omitted due to insufficient data. As a result, only 12 banks had enough information to be chosen as a sample for this study. The sample selection includes solely audited annual reports from 12 banks from 2012 through 2021, which is the current sample size for this study.

Table 1. Population and Sample Banks

S/N	Bank`s	Population	Sample	Year of Listing on NSE	Year of Incorporation
1	Access Bank Nig. Plc	√	√	1998	1989
2	Eco Bank Transitional Incorporative	√		2006	1985
3	First Bank Holding	√	√	1971	1969

S/N	Bank`s	Population	Sample	Year of Listing on NSE	Year of Incorporation
4	First City Monument Bank Nig. Plc	√	√	2004	1982
5	Fidelity Bank Nig. Plc	√	√	1999	1987
6	Guaranty Trust Bank Nig. Plc	√	√	1996	1990
7	Jaiz Bank Nig. Plc	√		2016	2003
8	Stanbic IBTC Bank Nigeria Limited	√	√	2005	1999
9	Sterling Bank Nig. Plc	√	√	1992	1969
10	Union Bank of Nig. Plc	√	√	1971	1968
11	United Bank for Africa Nig. Plc	√	√	1971	1967
12	Unity Bank Nig. Plc	√	√	2005	1987
13	Wema Bank Nig. Plc	√	√	1991	1945
14	Zenith Bank Nig. Plc	√	√	2004	1990

Jaiz Bank Plc was dropped because it was incorporated in 2003 and listed on the NGX in 2016, which means that the bank doesn't have enough years to be considered when looking at the study under review. Also, at Ecobank Transnational Incorporated, the researchers were unable to gather the complete data for the period of ten from 2012 to 2021 for the study under review.

Model Specification

The following equations were adapted from the work of Gbalam & Uzochukwu, (2020) and Akhmadi and Januarsi, (2021) and test the hypotheses:

$$FV_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \beta_3 EPS_{it} + \beta_4 DIV_{it} + \varepsilon_{it} \dots\dots\dots (1)$$

$$FV_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \beta_3 EPS_{it} + \beta_4 DIV_{it} + \beta_5 ROA_{it} * DIV_{it} + \beta_6 ROE_{it} * DIV_{it} + \beta_7 EPS_{it} * DIV_{it} + \varepsilon_{it} \dots\dots\dots (2)$$

Where:

FV = Firm value; ROA = Return on asset, ROE= Return on equity, EPS = Earnings per share, DIV = Dividend policy; *it* is for firm *i* in year *t* and ε is the error-term; β_0 , β_1 , β_2 , β_3 , β_4 = the coefficients of the variables.

Table 2. Variable Measurement and Sources

Variable	Symbol	Type	Measurement	Source
Firm Value (proxy by Market Value Added)	FV= MVA	Dependent	Measured as Market capitalization less liabilities divided by total assets.	Udiyana et al., (2022).
Return on assets	ROA	Independent	Measured as Net profit after tax divided by total assets.	Akhmadi and Januarsi, (2021) and Andriani et al., (2023).
Return on equity	ROE	Independent	Measured as Net profit after tax divided by total equity.	Tahu and Susilo, (2017), Yahaya et al., (2021) and Sudiyatno et al., (2021)
Earnings per share	EPS	Independent	Measured as Net profit after tax divided by number of ordinary shares.	Consler et al., (2011) and Andriani et al., (2023).
Dividend policy	DP	Moderator	Measured as cash dividend divided by profit after tax.	Virginus, (2020)

Results and Discussion

This section presents the descriptive statistics and summary of the regression result model used in the study.

Descriptive Statistics

The descriptive statistics of the model of the study is given in table 3.

Table 3. Descriptive Statistics

Variables	Obs	Min	Max	Mean	Std. Dev.
MVA	120	-0.50	1.50	0.004	0.231
ROA	120	-0.59	0.59	0.247	0.192
ROE	120	-0.89	1.79	0.775	1.623
EPS	120	-1.28	0.99	0.363	0.313
DP	120	0.000	141	1.802	1.340

Table 3 displays the variables' mean, maximum, minimum, and standard deviation values. The dependent variable is market value added (MVA), while the independent variables are return on assets (ROA), return on equity (ROE), earnings per share (EPS),

and dividend policy (DP) as a moderator. As indicated in Table 3, the data is therefore balanced for 120 observations.

Market value added averages 0.004, with a standard deviation from the central mean of 0.231 and values as low as -0.5 and as high as 1.5. The average ROA is 0.247. The standard deviation from the central mean was 0.192, with the lowest and highest readings being -0.59 and 0.59, respectively. The average return on equity is 0.775, with a standard deviation of 1.623 from the mean and minimum and maximum means of -0.89 and 1.79, respectively. The average earnings per share are 0.363, with a standard deviation of 0.313 from the mean and a range of -1.28 to 0.99. The moderator variable dividend policy, meanwhile, averages 1.802, with a standard deviation of 1.340 from the mean and minimum and maximum figures of 0.000 and 141.

Table 4. Correlation Matrix

	MVA	ROA	ROE	EPS	DP
MVA	1.00				
ROA	-0.376 (0.000)	1.00			
ROE	-0.020 (0.745)	-0.027 (0.774)	1.00		
EPS	-0.030 (0.000)	0.271 (0.002)	0.024 (0.797)	1.00	
DP	0.018 (0.845)	0.163 (0.076)	0.001 (0.917)	0.161 (0.0917)	1.00

In the case of MVA from table 4 show that ROA, ROE and ESP have negative correlation, while DP has positive correlation. The correlation between the profitability proxies (ROA, ROE, ESP and DP) were very weak, weak and moderate. Thus, it proves to have collinearity free.

Diagnostic Test

Before the study run the final regression, diagnostic analysis was conducted to maintain the lack of bias in the parameters as argued by Wooldridge, (2011).

Table 5. Variance Inflation Factor (VIF)

Variables	VIF	1/VIF
ROA	1.10	0.911
EPS	1.10	0.60
DP	1.04	0.628
ROE	1.00	0.676
Mean Value	1.06	

This has been confirmed from output of variance inflation facto (VIF) in table 3 displayed the correlation matrix table. The VIF result in table 5 provides evidence of collinearity free among the predictors of the study. This is true because, the highest VIF value is 1.10 among the variables of the study. The highest VIF confirmed absence of collinearity since it is less than 5. The explanatory variables are said to have collinearity free. The study assumes no multi-collinearity on the independent variables (Gujurati, 2004).

Robust OLS Result

The study presents the full OLS regression result in table below:

Table 6. GLS Regression Result for Model 1

Variables	Coef.	Std. Err	t-values	Sig.
Con	0.1808	0.452	-2.45	0.000
ROA	-0.3671	0.065	-0.87	0.000
ROE	0.0004	0.018	2.01	0.714
EPS	-0.2461	0.007	-4.29	0.000
DP	0.0020	0.137	3.49	0.133
R ²	0.251			
Adj.R ²	0.225			
Wald chi ² (4)	40.36			
F-Sig.	0.000			

Table 7. GLS Regression Result for Model 2

Variables	Coef.	Std. Err	t-values	Sig.
Con.	0.223	0.991	-3.71	0.000
ROA	-0.488	0.001	-0.07	0.671
ROE	0.017	0.061	-4.04	0.671
EPS	-0.186	0.061	1.50	0.004
DP	-0.329	0.014	5.39	0.009
ROADP	1.258	0.181		0.010
ROEDP	-0.164			0.661
EPSDP	-0.276			0.097
R ²	0.31			
Adj.R ²	0.27			
Wald chi ² (7)	54.74			
Prob.Wald chi ²	0.000			

The GLS regression is presented in tables 6 and 7 for the establishment of a link between the dependent and independent variables from the results thus, the models of the study are:

$$MV=0.1808-0.367ROA+0.0004ROE-0.2461EPS+0.0020DP$$

$$MV = -0.223 - 0.488ROA + 0.017ROEBI - 0.186EPS - 0.329DP + 1.258ROADP - 0.0164ROEDP - 0.276EPSDP$$

Model 1 depicts the constant (β_0) value of 0.1808. This means that, in the absence of return on assets, return on equity, earning per share, and dividend policy. The market value added of share price is 0.1808. From the GLS regression results in model 1, the return on assets has a negative relationship with market value added at 1 percent level of significance. This implies that for every one increase in the proportion to net income to total assets, the listed DMBs is seen to reduce market share price by 0.367 as seen in the parameter of the model β_1 therefore, the study can conclude that there is relationship since the p-value associated with the coefficient is significant. The hypothesis in respect of return on assets and market value earlier that assumed return on assets has no significance on market value added is not supported.

Though the regression result revealed a negative and significant link in the MVA model 1, there is a need to compare the result with that of the moderating result to find out if the moderator plays its role by strengthening or changing the direction of the said relationship in line with the argument put forward by information asymmetry and signaling theory that dividend policy would improve market value and investors would be persuaded to respond positively towards maximizing return on investment. However, the moderating role of DP does affect the link since the significant value (0.010) associated with the interactive coefficient (1.258) which is significant at 1 percent level of significance, the result is in line with Mubaraq et al., (2021); Akhmadi and Januarsi, (2021) and Koleosho et al., (2022) and contrary to (Tahu and Susilo, (2017)). The result suggests that the moderator would affect the relationship between return on assets and market value positively. This justifies rejecting the null hypothesis in respect of the moderator which says dividend policy does not moderate the relationship between return on assets and the market value of listed DMBs in Nigeria.

From the model, ROE has positive relationship with share price measure (MVA). However, the relationship is not significant at all level of significance. Even though, an increase in ROE is seen to increase share price by the value of 0.0004 in the parameter of the model β_2 therefore, this study cannot conclude this relationship. The hypothesis in respect of this relationship that said ROE would not improve share price is supported.

Though, the result revealed positive but insignificant link in the ROE model 1, there is need to compare the result with that of the moderating result so as to find if the moderator really plays its role by strengthening or changing the said relationship in line with the argument put forward by information asymmetry and signaling theory. However, the moderating role of DP does not affect the link since the significant value (0.661) associated with the interactive coefficient (-0.164) is not significant at all levels of significance and the result is in line with Tahu and Susilo, (2017) and contrary to Akhmadi & Januarsi, (2021). The hypothesis stated in respect of the dividend policy has no significant effect on the link between ROE and market value is supported.

In related development, EPS has negative statistically significant relationship with MVA. This seen from the parameter β_3 with the p-value of 0.000. This indicates that an increase in EPS by one will reduce market value by 0.246 with econometric assumption

of other thing remain constant. Hence, the hypothesis that proposed that EPS has no relationship with market value is not supported.

Though, the result revealed negative and significant relationship in the MVA model 1, there is need to compare the result with that of the moderating result so as to find if the moderator really plays its role by strengthening changing the said relationship in line with the argument put forward by information asymmetry and signaling theory. Also, the moderating role of DP does affect the link since the significant value (0.090) at 10 percent level associated with the interactive coefficient (0.276). the result is in line with (Mubaraq et al., (2021); Akhmadi & Januarsi, (2021) and Koleosho et al., (2022) and contrary to Tahu & Susilo, (2017). The earlier hypothesis stated with regards to the effect of dividend policy on the link between EPS and market value is not supported.

Robustness Test

Before the study run the final regression, some robustness tests were carried out. The Hausman were conducted to choose between random and fixed effect models with a p-value of 0.91 and 0.09 for models 1 and 2 respectively. This provides sufficient evidence to reject the null hypotheses which said that the fixed effect model is appropriate. Furthermore, the random effect could be tested by applying Bruesh Pagan LM test. The null hypothesis assumes that there are no random effects. If the null hypothesis is rejected, then the random group effect model is more appropriate than the pooled OLS model. The large values show that the null hypothesis is rejected in favor of the random group effect model. The X^2 of ROA are 22.94 and 13.54 with a p-value of 0.001 and 0.000 for models 1 and 2 respectively. This indicates that random effects are more appropriate. To justify the appropriateness of the two model's heteroscedasticity test 3 was conducted with a p-values of 0.000 for the aforementioned models. This implies that the test was significant which directed the choice of Generalized Least square (GLS). Thus, the study runs the GLS model based on the recommendation of Gujurati, (2004) and finally, the full OLS model is hereby presented and discussed in the table 6 and 7 respectively.

Conclusion and Recommendation

This study investigated the moderating effect of DP on profitability and FV among DMBs in Nigeria. The selected twelve banks in this study were drawn from the list of all quoted banks in Nigeria that disclose useful data for our variables of interest for ten years ranging from 2012 to 2021 in their annual financial report. In studying the moderating influence of DP on profitability and FV in Nigeria using our sampled companies, it was revealed that only the variables ROA and EPS showed negative significant effect on firm value. On the other hand, it was also revealed that only the variable ROA showed a positive significant effect on the relationship with firm value through dividend policy. As a pure moderator, DP has been shown to favorably regulate the relationship between profitability and firm value. However, the authors suggest that based on their empirical findings, the Central Bank of Nigeria and the Security and Exchange Commission should come up with post-dividend payment regulation that can basically contributes to firm DP decisions. The results shed light on how profitability and DP are crucial elements for maximizing company value in the banking industry.

The study has some important policy implications for investors, bank management, and policymakers. First, our research shows that the financial institution's DP regulation has a significant impact on firms' ability to create value, suggesting that future regulations and capital market policies pertaining to DP should be issued with more caution. Secondly, investors and shareholders in the financial services sector may find the combination of DP and profitability to be a promising determinant and indicator for evaluating the performance of banking businesses. Finally, we argue that our discovery is critical for corporate decision-makers when they establish a rule on the dividend policy, as this might become a viable approach to increasing the firms value.

Future studies can look at the moderating effect of dividend policy on the relationship between profitability and firm value of other sector rather than deposit money banks, i.e. insurance companies, micro finance banks, consumer goods firms, conglomerate companies, agricultural companies, health companies, real estate companies, services companies, oil and gas companies, information and communication technologies companies, industrial goods companies and natural resources companies.

Furthermore, future researchers can also add other variables of profitability to the one identify in this research. i. e. Net profit margin etc. And also can use other measurement of dividend policy.



References

- Ahmed Yahaya, O., Abubakar Nuhu, B., & Salawu Salihu, H. (n.d.). *Impact of profitability on dividend payout of listed consumer goods firms in Nigeria*. www.ijmcer.com
- Akhmadi, A., & Januarsi, Y. (2021). Profitability and firm value: Does dividend policy matter for Indonesian sustainable and responsible investment (SRI)-KEHATI listed firms? *Economies*, 9(4). <https://doi.org/10.3390/economies9040163>
- Andabai, P. W. (2020). Dividend policy and its impact on market value of deposit money banks in Nigeria. *Global Journal of Education, Humanities and Management Sciences*, 2(1), 1–9.
- Andriani, S. D., Kusumastuti, R., & Hernando, R. (2023). Pengaruh Return on Equity (ROE), Earning Per Share (EPS) and Debt to Equity Ratio (DER) Terhadap Harga Saham (Studi Empiris Pada Perusahaan Industri Makanan Olahan yang Terdaftar di Bursa Efek Indonesia Tahun 2018–2020). *Owner: Riset Dan Jurnal Akuntansi*, 7(1), 333–345.
- Arifianto, M., & Chabachid, M. (2016). Analisis faktor-faktor yang mempengaruhi nilai perusahaan (Studi kasus pada perusahaan yang terdaftar pada indeks LQ-45 periode 2011-2014). *Diponegoro Journal of Management*, 5(1), 1–12.
- Brigham, E. F., & Houston, J. F. (2006). *Fundamentals of Financial Management: Dasar-Dasar Manajemen Keuangan*.

- Charumathi, B., & Murali, K. (2016). *On the determinants of firm value of Indian companies*.
- Consler, J., Lepak, G. M., & Havranek, S. F. (2011). Earnings per share versus cash flow per share as predictor of dividends per share. *Managerial Finance*, 37(5), 482–488.
- Data, A., Alhabsji, T., Mangesti, S., & Handayani, S. R. (2017). Effect of growth, liquidity, business risk and asset usage activity, toward capital structure, financial performance and corporate value (Study at Manufacturing Companies listed in Indonesian stock exchange in 2010-2015). *Euoropan Journal of Bussiness and Manajement*, 9(24), 1–13.
- Fairchild, R. J., Yilmaz G., & Yordying T. (2014). Corporate dividend policy in Thailand: Theory and evidence. *International Review of Financial Analysis*, 31, 51–129.
- Gbalam, E., & Uzochukwu, A. (2020). Moderating effect of dividend policy and share prices of quoted firms in Nigeria. In *International Journal of Research and Scientific Innovation (IJRSI) /: Vol. VII*. www.rsisinternational.org
- Ghalandari, K. (2013). The moderating effects of growth opportunities on the relationship between capital structure and dividend policy and ownership structure with firm value in Iran: Case study of Tehran securities exchange. *Research Journal of Applied Sciences, Engineering and Technology*, 5(1424), 31.
- Gujurati, D. N. (2004). *Basic Econometrics* (Fourth Editions).
- Guna, M., & Sampurno, R. (2018). Analysis of Factors Affecting Capital Structure. *Journal of Accounting, Diponegoro University*, 7(2), 133–147.
- Handoko, P. (2017). The influence of firm's size, growth, and profitability on firm value with capital structure as the mediator: A study on the agricultural firms listed in the Indonesian stock exchange. *International Journal of Economics and Finance*, 9(103), 10.
- Hirdinis, M. (2019). Capital structure and firm size on firm value moderated by profitability. *International Journal of Economics and Business Administration*, 7(174), 91.
- Hossin, Md. S., & Ahmed, Md. F. (2020). Dividend policy and stock price volatility in the Bangladesh capital market: An experimental analysis. *Saudi Journal of Economics and Finance*, 4(7), 359–367.
<https://doi.org/10.36348/sjef.2020.v04i07.008>
- Koleosho, A. O., Akintoye, I. R., & Ajibade, A. T. (2022). The effect of dividend policy on share price volatility of some selected companies on the Nigerian exchange. *Journal of Accounting, Business and Finance Research*, 15(1), 10–20.
<https://doi.org/10.55217/102.v15i1.525>

- Li-Ju Chen Shun-Yu Chen, A. (n.d.). “*The influence of profitability on firm value with capital structure as the mediator and firm size and industry as moderators.*”
- Liow, K. H. (2010). Firm value, growth, profitability and capital structure of listed real estate companies: An international perspective. *Journal of Property Research*, 27, 46–119.
- Manurung, S. D., & Suhadak, & N. N. F. (2014). The influence of capital structure on profitability and firm value (A Study on food and beverage companies listed in Indonesia Stock Exchange 2010-2012). *Jurnal Administrasi Bisnis (JAB)*, 72, 1–8.
- Morakinyo, F. O., David, J. O., Adeleke, E. O., & Omojola, S. O. (2018). Determinants of dividend policy of listed deposit money banks in Nigeria. *World Journal of Finance and Investment Research (International Institute of Academic Research and Development)*, 3(1), 25–40.
- Mubaraq, M., Rahayu, S. M., Saifi, M., & Darmawan, A. (n.d.). The moderating effect of corporate governance on the relationship between dividend policy, capital structure, and firm value: Evidence from Indonesian manufacturer companies. *European Journal of Molecular & Clinical Medicine*.
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
- Nugroho, W., & Abdani, F. (2017). The effect of profitability, dividend policy, leverage and investment decisions on firm value. *El-Muhasaba Accounting Journal Airlangga University*, 8–1.
- Nwamaka, O. C., & Eze, B. (2017). Effect of dividend policies on firm value: Evidence from quoted firms in Nigeria. *International Journal of Management Excellence*, 8(2), 956–967.
- Odum, A. N., Odum, C. G., Omeziri, R. I., & Egbunike, C. F. (2019). Impact of dividend payout ratio on the value of firm: A study of companies listed on the Nigerian stock exchange. *Indonesian Journal of Contemporary Management Research*, 1(1), 25–34.
- Pandy, I. M. (2005). *Financial Management*. 9th Edition, Vikas Publishing, New Delhi.
- Paulus Tahu, G., & Djoko Budi Susilo, D. (2017). Effect of liquidity, leverage and profitability to the firm value (dividend policy as moderating variable) in manufacturing company of Indonesia stock exchange. *Research Journal of Finance and Accounting*, 8(18). www.idx.co.id
- Pribadi, M. (2018). Effect of asset structure, firm size, liquidity, and profitability on firm value. *Journal of the E-ISSN Conference Progress*.

- Reschiwati, R., Syahdina, A., & Handayani, S. (2020). Effect of liquidity, profitability, and size of companies on firm value. *Utopia y Praxis Latinoamericana*, 25(Extra 6), 325–332. <https://doi.org/10.5281/zenodo.3987632>
- Septiani, N., & Suryana, L. (2018). Effect of Profitability, Firm size, Asset Structure, Business Risk, and Liquidity on the Capital Structure. *E-Journal of Accounting, Udayana University*, 22(3).
- Sudiyatno, B., Puspitasari, E., Nurhayati, I., & Rijanti, T. (2021). The relationship between profitability and firm value: Evidence from manufacturing industry in Indonesia. *International Journal of Financial Research*, 12(3), 466. <https://doi.org/10.5430/ijfr.v12n3p466>
- Sudiyatno, B., Puspitasari, E., Suwarti, T., & Asyif, M. M. (2020). Determinants of firm value and profitability: Evidence from Indonesia. *Journal of Asian Finance, Economics and Business*, 7(11), 769–778. <https://doi.org/10.13106/jafeb.2020.vol7.no11.769>
- Thanatawee, Y. (2014). Institutional ownership and firm value in Thailand. *Asian Journal of Business and Accounting*, 7, 1–22.
- Udiyana, I. B. G., Astini, N. N. S., Parta, I. N., Laswitarni, N. K., & Wahyuni, L. A. (2022). Economic value added (EVA) and market value added (MVA) implications on stock returns. *Jurnal Ekonomi & Bisnis JAGADITHA*, 9(1), 15–22.
- Ugwu, C. C., Onyeka, V. N., & Okwa, I. E. (2020). Dividend policy and corporate financial performance: Evidence from selected listed consumer goods firms in Nigeria. *Journal of Economics and Business*, 3(3). <https://doi.org/10.31014/aior.1992.03.03.262>
- Virginus, U. I. (n.d.). Moderating Dividend Policy on Firm Stock Price. *International Network Organization for Scientific Research*. <http://www.inosr.net/inosr-arts-and-management/>
- Wooldridge, J. M.-. (2011). Fractional response models with endogeneous explanatory variables and heterogeneity. In *CH11 Stata Conference (No. 12)*. Stata Users Group.
- Yanti, I., & Darmayanti, N. (n.d.). The effect of profitability, firm size, capital structure and liquidation on firm value. *Management E-Journal of Udayana University*, 8(4), 12–21.

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Original Research

Comparative Analysis of ARIMA, SARIMAX, and Random Forest Models for Forecasting Future GDP of the UK in Relation to Unemployment Rate

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Abstract

Accurate forecasting of Gross Domestic Product (GDP) is crucial for policymakers, businesses, and investors. This research explores the use of SARIMAX, ARIMA, and Random Forest models to forecast GDP in the UK. The study investigates the relationship between GDP and the unemployment rate, considering historical GDP and unemployment data collected from the Office of National Statistics (ONS). Both SARIMAX and ARIMA models indicate a negative relationship between GDP and the unemployment rate, although the coefficients are not statistically significant. On the other hand, the Random Forest model has shown its supremacy when it comes to the accuracy of prediction. The results suggest that other factors may have a stronger influence on GDP fluctuations based on the empirical findings. Future research should consider additional variables and advanced modelling techniques to further explore the relationship between GDP and the unemployment rate, contributing to a deeper understanding of the UK economy and informing effective economic management.

Keywords: ARIMA, Forecasting, GDP, Random Forest models, SARIMAX.

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Introduction

Precise forecasting of GDP is of paramount importance for policymakers, businesses, and investors, as it provides crucial insights into a country's economic performance and facilitates decision-making processes (Gonzalez et al., 2022; Saâdaoui & Khalfi, 2022). The predictability of forthcoming GDP allows governments to frame effective fiscal policies, stimulates businesses to make informed investment decisions, and obliges individuals in planning their monetary activities (Hua, 2022). Academic research invariably acknowledges that a nation's economic metamorphosis and stability hinge on its Gross Domestic Product (GDP) as a benchmark of wealth, with various macroeconomic factors such as unemployment rate, inflation rate, exchange rate, foreign direct investment, and crude oil exports indicators playing significant roles, as documented in multiple scholarly works (Anthony and Emediong, 2021; Divya and Devi, 2014; Olalekan & Kamoru, 2020). Although national treasuries' economic forecasts have tried to forecast economic performance, the volatility of the economy and the intricate interplay of political, natural, social, and economic factors make precise predictions difficult and highlight the drawbacks of relying only on a few indicators (Muma & Karoki, 2022; Aisen & Veiga, 2011).

As of late, a variety of modelling methods, including traditional time series methods like ARIMA (AutoRegressive Integrated Moving Average), Artificial Neural Network (ANN) models (Bouznad et al., 2020; Zhang et al., 2019) and more sophisticated methods like SARIMAX (Seasonal AutoRegressive Integrated Moving Average with eXogenous variables) and Random Forest models, have been used to forecast GDP. These models make use of various statistical and machine-learning techniques to identify the seasonality, patterns, and trends in GDP data. According to the Office for National Statistics, the UK economy underwent nought growth in the last quarter of 2022 but contracted by a larger-than-anticipated 0.5% in December (Smith, 2023). Thus, the UK economy encountered a period of stagnation in late 2022, anticipating a brief recession in 2023, accompanied by declining consumer confidence and business output (House of Common Library, 2023). In pursuit of prompt economic growth, developing nations, Uddin & Rahman (2022) observe, have acquired advanced technology from Western counterparts but often implemented ineffective policies, leading to a persistent elevation in unemployment which could have a substantial impact on the GDP of the nation. This study primarily concentrates on unemployment and its influence on GDP.

Statement of the Problem and Research Objective

Unemployment serves as a pivotal macroeconomic indicator reflecting labor market health and overall economic conditions (Thiede & Monnat, 2016; Voßemer et al., 2017). Fluctuations in the unemployment rate can exert significant ramifications on aggregate demand, consumer spending, and business investment, all of which hold the potential to impact GDP (Stockhammer et al., 2011; Cashin et al., 2018). The UK is projected to experience a more severe economic contraction than initially anticipated in comparison to other advanced G7 nations, as reported by the International Monetary Fund, exposing a conundrum portrayed by a restrained labour market and an economy that has not reintegrated as many individuals into employment as previously observed (Mathers,

2023). Therefore, this research seeks to address this complex challenge by developing an innovative GDP forecasting model that incorporates historical GDP data, unemployment data, and other relevant variables. By doing so, it aims to provide more accurate and reliable GDP forecasts that can better inform decision-makers and stakeholders in an ever-changing economic landscape.

Literature Review

Gross Domestic Product (GDP) forecasting is a crucial instrument for decision-making in economics. In recent years, machine learning, linear regression, and autoregression models have been used to forecast GDP (Maccarrone et al., 2021). The study by Hjazeen et al. (2021) explore the nexus between economic growth and unemployment in Jordan, employing the auto-regressive distributed lag (ARDL) model to reveal a negative correlation between the two variables during the period 1991-2019. Andrei et al. (2009) highlight the significance of the negative correlation between unemployment and real GDP growth, as predicted by Okun's law, in achieving optimal economic outcomes and managing inflationary pressures in Romania. Moreover, the study by Al-kasasbeh (2022) explores the validity of Okun's Law in Jordan's economy and finds support for the relationship between unemployment and economic growth. Policy recommendations concentrate on attracting FDI and implementing measures for labor and growth enhancement. Further, Azmi (2013) investigates the impact of macroeconomic variables (unemployment rate, interest rate, and government spending) on Malaysia's GDP using 30 years of data. The study finds a significant relationship, with unemployment rate negatively affecting GDP, while interest rate and government spending have a positive impact. To evaluate the effect of Micro, Small, and Medium-Sized Enterprises (MSMEs) and unemployment on the economic growth of Indonesia, Juanda et al. (2023) carried out a quantitative research study with multiple linear regression. The results showed that while unemployment also had a negative and large impact on Indonesia's overall growth, MSME expansion had a negative and significant impact on that growth.

After evaluating the trade-off between model simplicity and accuracy, Mohamed's (2022) study determined that the Autoregressive Integrated Moving Average (ARIMA) model is the optimal choice for estimating and forecasting the future trajectory of economic growth in Somalia. The selected model strikes a balance between being parsimonious, i.e., having a simple structure, and fulfilling the fitness criteria, i.e., accurately capturing the underlying patterns and dynamics of the Somali economy. According to a study conducted by Hussain et al. (2022), the research findings exhibit that the ARIMA model demonstrates superior rendition compared to the ANN (Artificial Neural Network) model when forecasting exchange rates. The ARIMA model yields forecasted values that closely align with the actual values. Additionally, in terms of GDP forecasting, the ARIMA model exhibits better accuracy with smaller forecast errors. In a study by Shahriar et al. (2021) focusing on atmosphere-related factors, it was found that both ARIMA and ANN-based models yielded more accurate results compared to other forecasting models. In their study, Anggraeni et al. (2017) compared the forecasting interpretation of ARIMAX and VAR models for rice prices where Results revealed that the ARIMAX model outperformed the VAR model. The study of Sharma et al. (2022) presents a comparison of the performance of models using exogenous variables to capture volatility dynamics in India and USA benchmark time series data, contributing to existing

research in ARIMA and Prophet-based forecasting. This research has formed its first hypothesis based on this information.

H₀: The GDP of the UK is going down in future based on ARIMA model.

Alharbi & Csala (2022) introduce a forecasting framework employing the SARIMAX model to predict long-term performance in Saudi Arabia's electricity sector resulting in the superior performance of the SARIMAX model than simpler techniques, providing enhanced forecasting accuracy and adaptability to different dataset sizes. By the operating time series analysis and taking factors such as exogenous prices, and internal and external electricity flows into accounts, a SARIMAX model $(1, 1, 2) \times (3, 1, 0, 7)$ is identified as the best-fitting model for energy price forecasting (Wang et al., 2022). Li & Xu's (2023) study examines the use of Baidu Search Index to forecast tourist volume from mainland China to Macao, Hong Kong, and Thailand. Their SARIMAX model surpasses benchmark models, highlighting the valuable contribution of search engine data to tourism demand forecasting. Both SARIMAX, an extension of the SARIMA model incorporating time series covariates, and the classical linear regression model (LR) are used for GDP forecasting (Maccarrone et al., 2021). However, their results indicate that both SARIMAX and LR models tend to overestimate GDP predictions.

H₁: The GDP of the UK is going down in future based on SARIMAX model.

H₂: The nexus between unemployment rate and GDP growth is negative.

Several scholars have utilized Machine learning predictive algorithms for GDP forecasting. Chu & Qureshi (2022) compare forecasting methods for U.S. GDP growth and find that density-based machine learning outperforms sparsity-based methods for short-term forecasts, while parsimonious models with strong high-frequency clairvoyants outperform complicated models with many low-frequency predictors for long-term forecasts. Ensemble machine learning performs better than deep learning. Velidi (2022) aims to employ machine learning algorithms to forecast global GDP, assess its annual growth rate, and understand the consequential variables, demonstrating the significance of GDP as an indicator of an economy's size and functioning. The study also visualizes the comparison of GDP growth rates among countries and evaluates the impact of various parameters on GDP. Moreover, the study of Khairani et al. (2022) utilizes Random Forest classification to predict the upcoming quarter's economic blossoming in Indonesia, using online news data from January to March 2021, achieving 96.51% accurateness and recognizing three incorrectly predicted GDP categories. Further, Ghosh & Ranjan (2023) conduct research on different methodologies for nowcasting and forecasting real GDP growth in emerging market economies, comprising traditional time series and machine learning techniques, along with financial market data and an economic uncertainty index, leading to improved nowcasting performance. In Xue's (2022) study, the influence of the digital economy on macroeconomic oscillations is analyzed through the construction of early warning indexes for digital infrastructure using principal component analysis. By employing Random Forest Regression (RFR), the research identifies the importance of digital infrastructure, capital formation, and human resources in China's economic growth, providing insights for forecasting. The findings reveal that the application of digital infrastructure has a stronger impact on the economy compared to its construction,

with regional rifts and a greater influence on the economically developed eastern region. Random Forest demonstrates effectiveness as a machine learning approach in this research. This will lead to the third hypothesis:

H₃: The GDP of the UK is going down in future based on Random Forest model.

Research Methodology

Research Design

This research embraces a quantitative research design to investigate the relationship between Gross Domestic Product (GDP) and the unemployment rate in the United Kingdom over the period from 2007 to 2023. The research design encompasses data collection, data pre-processing, and the application of two preliminary forecasting models: SARIMAX and ARIMA and Random Forest Models.

Workflow

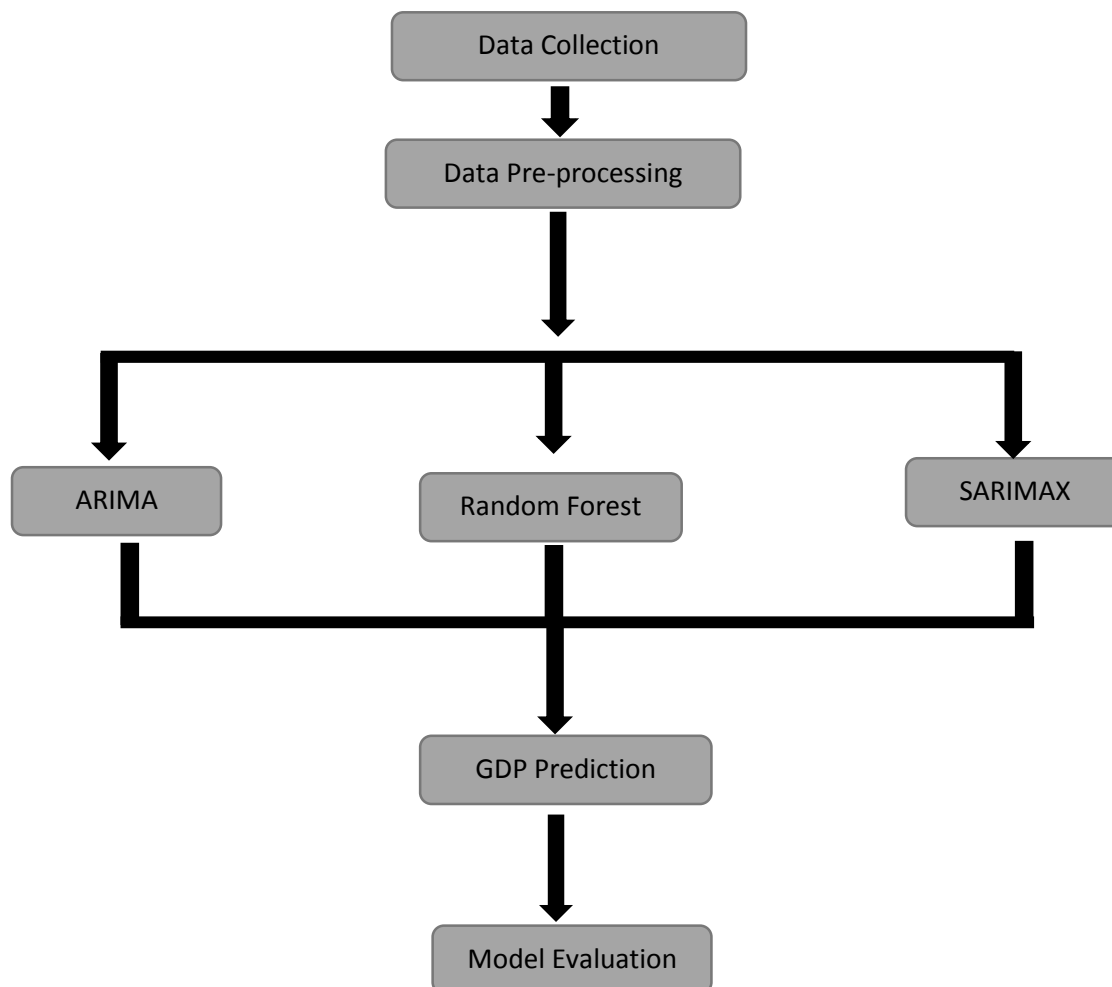


Figure 1: The workflow of the study

Data Collection

The data for this research study is collected from the Office for National Statistics (ONS), which is a reliable and authoritative source for economic indicators in the UK. Specifically, the following datasets are obtained between 2007 and 2023. The historical Gross Domestic Product (GDP) for the UK is collected from the ONS database. This dataset provides information on the monthly GDP figures, reflecting the economic output of the country over time. Afterwards, Unemployment Rate dataset containing the historical unemployment rate in the UK is also sourced from the ONS. This dataset records the percentage of the labour force that is unemployed over a given period on a monthly basis. The data from these sources ensures the accuracy and reliability of the research findings and allows for a comprehensive analysis of the relationship between GDP and unemployment rate in the UK.

Data Pre-processing

Data transformations were carried out such as converting data types or normalizing variables. Merge the GDP and unemployment rate datasets into a single cohesive dataset for analysis.

Model Selection

SARIMAX (1,1,1,12) Model: The SARIMAX model, renowned for its efficacy in economic forecasting, was chosen. It is designed to handle time series data. In this context, the unemployment rate was introduced as an exogenous variable, acknowledging its significant impact on labour market dynamics and its relationship with economic output. The SARIMAX model can be represented in equation format as follows:

$$y_t = \alpha + \beta_1 x_{1,t} + \beta_2 x_{2,t} + \dots + \beta_k x_{k,t} + \phi_1 y_{t-1} + \dots + \phi_p y_{t-p} + \theta_1 e_{t-1} + \dots + \theta_q e_{t-q} + e_t \quad (1)$$

The variable y_t signifies the value of the dependent variable at a specific time. The constant term α serves as the baseline or intercept of the model. Coefficients $\beta_1, \beta_2, \dots, \beta_k$ are linked to k explanatory variables $x_{1,t}, x_{2,t}, \dots, x_{k,t}$ which contribute to y_t . Autoregressive terms $\phi_1, \phi_2, \dots, \phi_p$ incorporate p lagged observations. Moving average terms $\theta_1, \theta_2, \dots, \theta_q$ encompass q lagged error terms $e_{t-1}, e_{t-2}, \dots, e_{t-q}$ affecting y_t . Lastly, represents the error term at time e_t at time t , encapsulating unobservable factors and model residuals.

ARIMA (1,0,0) Model: for the purpose of comparative analysis, this research will deploy the ARIMA model which is also capable of handling time series data with appropriate model parameters having the unemployment rate as an exogenous variable in the ARIMA model. The ARIMA (with exogenous variable) model can be represented in equation format as follows:

$$\text{GDP}(t) = c + \phi_1 * \text{GDP}(t-1) + \theta_1 * \varepsilon(t-1) + \beta * \text{unemployment_rate}(t) + \varepsilon(t) \quad (2)$$

The model includes several key components for analyzing GDP dynamics over time. GDP at time t is represented as $\text{GDP}(t)$, while the intercept term is denoted as c . The

autoregressive coefficient of lag 1 is ϕ_1 , accounting for the influence of GDP's past value ($GDP(t-1)$). Similarly, the moving average coefficient of lag 1 is θ_1 , considering the impact of the previous period's residual term ($\varepsilon(t-1)$). The coefficient β signifies the effect of the exogenous variable, specifically the unemployment rate, denoted as $unemployment_rate(t)$. The model also encompasses residual terms $\varepsilon(t)$ at each time point, representing the model's error term.

Data Analysis

The selected models (SARIMAX and ARIMA) were implemented using Python's statsmodels library, with suitable model parameters configured, including the order of differencing, autoregressive order, moving average order, and seasonal order. These models allow for a comprehensive evaluation of the connection between GDP and the unemployment rate in the UK, considering the cyclical nature of the economy and the intricate interplay between labor market conditions and economic performance. Through rigorous data analysis, this research aims to provide valuable insights into the dynamics of GDP forecasting and its correlation with unemployment rates in the UK over the specified timeframe. Further, Random Forest was implemented owing to its robust predictive ability to make the comparative studies more comprehensive.

Empirical Findings/Result

Table 1. Findings of SARIMAX and ARIMA Models

	ARIMA	SARIMAX
AIC	774.770	761.897
BIC	787.770	777.862
Ljung-Box (L1) (Q)	18.02	16.18
Jarque-Bera (JB)	60142.60	51621.92
Sigma value	2.9570	3.2088
Skew	-7.38	-7.32
Heteroskedasticity	19.93	23.88
Coef	-1.9059	-1.3332
Standard error	1.978	2.222

The results (Table 1) show that the SARIMAX model appears to perform better than the ARIMA model for forecasting the monthly GDP in the UK. The SARIMAX model exhibits a lower AIC value (761.897) compared to the ARIMA model (774.770), indicating a better fit. Additionally, the SARIMAX model shows lower values for the Ljung-Box test (Q-statistic) and Jarque-Bera test (JB-statistic), suggesting better residuals' independence and normality assumptions. The SARIMAX model also has a lower skewness value (-7.32) compared to the ARIMA model (-7.38), indicating a better balance in the distribution of residuals. Furthermore, the SARIMAX model has a lower sigma value (3.2088) compared to the ARIMA model (2.9570), indicating a more accurate estimation of the error variance. It is worth noting that both models exhibit significant heteroskedasticity.

Further, the coefficient of the unemployment_rate variable in the ARIMA model is -1.9059 with a standard error of 1.978, while the coefficient of the SARIMAX model is -1.3332 with a standard error of 2.222. In both models, the coefficient of the unemployment_rate variable is negative, indicating a negative relationship between GDP and the unemployment rate. The coefficient of the unemployment_rate variable in the ARIMA model (-1.9059) and the SARIMAX model (-1.3332) represents the estimated impact or effect of a one-unit increase in the unemployment rate on the dependent variable of the respective models. In both models, a negative coefficient indicates an inverse relationship between the unemployment rate and the GDP growth. Specifically, a one-unit increase in the unemployment rate is associated with a decrease in the dependent variable. However, it should be noted that the p-value of the unemployment_rate coefficient is not statistically significant in both models. The p-value in the ARIMA model is 0.335 and in the SARIMAX model is 0.548. This suggests that the unemployment_rate variable may not have a significant effect on the forecasting performance of the models. Thus, when an attempt was made to include the unemployment_rate variable in the models, the results suggest that it may not be statistically significant in predicting monthly GDP in the UK context which refers to conducting further research along with different exogenous variables on distinct time series analysis techniques including ARCH and GRACH models.

Table 2. Findings of Random Forest Models

Random	Forest
Mean Squared Error	0.2271916461538424
R-squared	0.9946163781315692

In light of the less statistical p-value observed in the SARIMAX and ARIMA models regarding the connection between GDP and the unemployment rate, an alternative prediction model was employed using the Random Forest algorithm of ensemble classification. This new model focused solely on GDP data and excluded the unemployment rate. The Random Forest model yielded a Mean Squared Error and an R-squared values (Table 2), indicating its high accuracy and strong explanatory power in forecasting GDP based on the selected features. It shows the unchanged GDP trend in future periods taking only GDP data into account.

Models' Forecasting

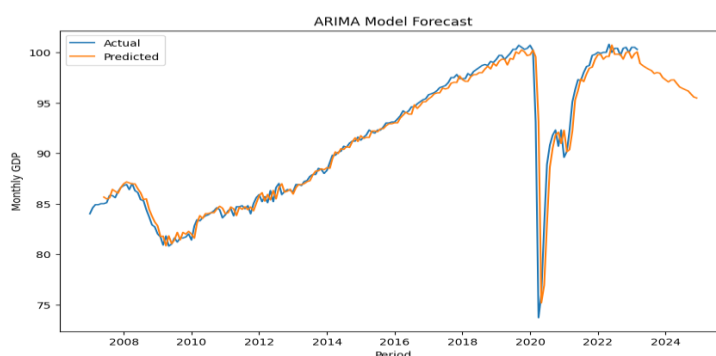


Figure 2: GDP forecast by ARIMA.

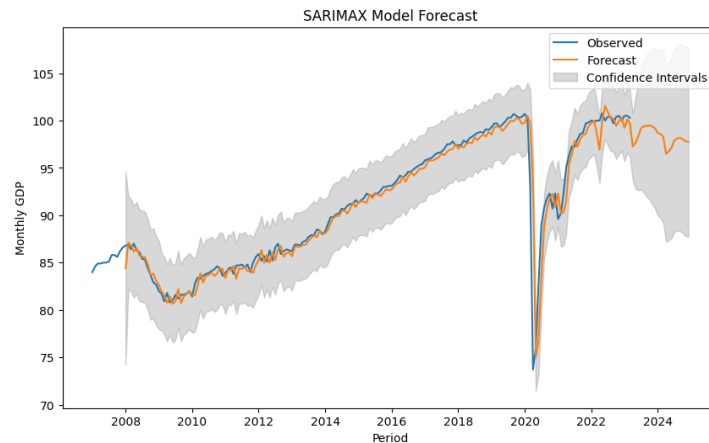


Figure 3: GDP forecast by SARIMAX.

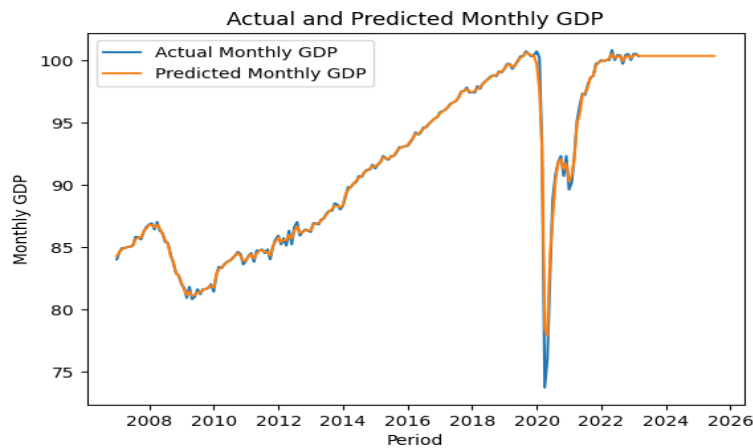


Figure 4: GDP forecast by Random Forest.

Discussions

The study used two models to predict the UK's GDP in the future: SARIMAX and ARIMA with an exogenous variable. The alternative hypothesis (H1) proposed that the GDP is declining based on the SARIMAX, contrary to the null hypothesis (H0), which claimed that the UK's GDP will decline in the future based on the ARIMA model. The idea that the UK's GDP will decline in the future was supported by both models (Figure 2 & 3).

The research aimed to examine the relationship between GDP and the unemployment trend in the UK. Both the ARIMA model and the SARIMAX model indicated a negative relationship between GDP and the unemployment rate, as evidenced by the negative coefficients of the unemployment rate variable (Table 1). However, it is crucial to remember that neither model's p-values for the unemployment rate coefficient were statistically significant. The p-value in the ARIMA model was 0.335, and in the SARIMAX model, it was 0.548. This shows that the unemployment rate variable may not have a substantial impact on the models' ability to accurately anticipate monthly GDP in

the setting of the UK.

These findings raise the question of whether the unemployment rate variable is truly a significant predictor of GDP in the UK. While both models indicate a negative relationship, the lack of statistical significance suggests that other factors or variables may have a stronger influence on GDP fluctuations. It is important to consider alternative exogenous variables that may better capture the complex dynamics of the UK economy in future.

Hypothesis H3, suggesting a future decline in the UK's GDP based on the Random Forest model, was neither ratified nor disowned. Instead, the findings indicate a projected trend of GDP stagnation (Figure 4). Thus, it is highly recommended to explore potential factors contributing to this unexpected outcome and suggest future research avenues to gain a deeper understanding of the UK's economic trajectory deploying other predictive algorithms.

To further investigate the relationship between GDP and the unemployment rate, future research could explore the inclusion of additional variables that have been identified as potential drivers of GDP fluctuations, such as inflation rates, interest rates, or government policies. Additionally, employing more advanced time series analysis techniques, such as ARCH (Autoregressive Conditional Heteroscedasticity) or GRACH (Generalized Autoregressive Conditional Heteroscedasticity), may offer insights into the presence of conditional heteroscedasticity or nonlinear relationships that could impact the relationship between GDP and the unemployment rate.

Further research is warranted to enhance our understanding of the relationship between GDP and the unemployment rate in the UK. By exploring different exogenous variables and employing advanced modelling techniques, a more comprehensive analysis can be conducted to identify the key drivers of GDP fluctuations and their respective impacts on the unemployment rate. This will contribute to a deeper understanding of the dynamics of the UK economy and provide policymakers with valuable insights for effective economic management and policy formulation.

Conclusions

In conclusion, this research sought to forecast the Gross Domestic Product (GDP) of the UK using SARIMAX, ARIMA, and Random Forest models. The findings suggest that both SARIMAX and ARIMA models indicate a negative nexus between GDP and the unemployment rate, although the coefficients were not statistically momentous. This implies that the unemployment rate may not have a substantial impact on accurately predicting monthly GDP in the UK.

The study highlights the need to consider other factors or variables that may have a stronger influence on GDP fluctuations. Future research should explore the inclusion of additional variables such as inflation rates, interest rates, or government policies, which may provide better insights into the dynamics of the UK economy. Utilizing advanced time series analysis techniques like ARCH or GRACH could also uncover nonlinear

relationships or conditional heteroscedasticity that could impact the relationship between GDP and the unemployment rate.

Enriching the understanding of the affinity between GDP and the unemployment rate in the UK is paramount for effective economic management and policy formulation. By conducting comprehensive analyses that consider various exogenous variables and employ advanced modelling techniques, policymakers can make informed decisions to promote economic stability and growth. Continued research in this area will contribute to a deeper understanding of the dynamics of the UK economy and provide valuable insights for future forecasting and policy implementation.

Abbreviations (Nomenclature)

<i>GDP</i>	Gross Domestic Product
<i>C</i>	Intercept term
β	Regression coefficients
Φ	Autoregressive coefficient
Θ	moving average coefficient
ε	lagged residual term
β	coefficient of the exogenous variable
H_0	Null hypothesis
e_t	Error term
<i>p-value</i>	Probability value
<i>R</i>	Pearson correlation coefficient

References

- Aisen, A., & Veiga, F. J. (2011). How Does Political Instability Affect Economic Growth? *SSRN Electronic Journal*.
- Al-kasasbeh, O. (2022). The relationship between unemployment and economic growth: is Okun's Law valid for the Jordan case? *International Journal of Economics Development Research (IJEDR)*, 3(3), 217–226.
- Alharbi, F. R., & Csala, D. (2022). A Seasonal Autoregressive Integrated Moving Average with Exogenous Factors (SARIMAX) Forecasting Model-Based Time Series Approach. *Inventions*, 7(4), 94.
- Andrei, D. B., Vasile, D., & Adrian, E. (2009). The correlation between unemployment and real GDP growth. A study case on Romania. *Annals of Faculty of Economics*, 2(1), 317-322.
- Anggraeni, W., Andri, K. B., Sumaryanto, & Mahananto, F. (2017). The Performance of ARIMAX Model and Vector Autoregressive (VAR) Model in Forecasting Strategic Commodity Price in Indonesia. *Procedia Computer Science*, 124, 189–196.

- Anthony, U. and Emediong, U. (2021). Multivariate time series modelling of nigerian gross domestic product (gdp) and some macroeconomic variables. *African Journal of Mathematics and Statistics Studies*, 4(3), 12–31.
- Azmi, F. B. (2013). An Empirical Analysis of the Relationship between GDP and Unemployment, Interest Rate and Government Spending. *SSRN Electronic Journal*.
- Bouznad, I. E., Guastaldi, E., Zirulia, A., Brancale, M., Barbagli, A., & Bengusmia, D. (2020). Trend analysis and spatiotemporal prediction of precipitation, temperature, and evapotranspiration values using the ARIMA models: case of the Algerian Highlands. *Arabian Journal of Geosciences*, 13(24).
- Cashin, D., Lenney, J., Lutz, B., & Peterman, W. (2018). Fiscal policy and aggregate demand in the USA before, during, and following the Great Recession. *International Tax and Public Finance*, 25(6), 1519–1558.
- Chu, B. M., & Qureshi, S. (2022). Comparing Out-of-Sample Performance of Machine Learning Methods to Forecast U.S. GDP Growth. *Computational Economics*.
- Divya, K. H. and Devi, V. R. (2014). A study on predictors of gdp: Early signals. *Procedia Economics and Finance*, 11(14), 375–382.
- Ghosh, S., & Ranjan, A. (2023). A machine learning approach to gdp nowcasting: an emerging market experience. *Buletin Ekonomi Moneter Dan Perbankan*, 26, 33–54.
- Gonzalez, L. M., Llanto, C., & Manapat, C. (2022). The Relationship between Philippine Population, Remittances, Foreign Direct Investment, and Trade Openness on its Gross Domestic Product. *Journal of Economics, Finance and Accounting Studies*, 4(4), 168–201.
- Hjazeen, H., Seraj, M., & Ozdeser, H. (2021). The nexus between the economic growth and unemployment in Jordan. *Future Business Journal*, 7(1).
- House of Common Library. (2023, January 30). *Economic update: Short recession looming and concern over US climate policies*. UK Parliament .
- Hua, S. (2022). Back-Propagation Neural Network and ARIMA Algorithm for GDP Trend Analysis. *Application of Neural Network in Mobile Edge Computing*, 2022, 1–9.
- Hussain, L., Ghufuran, B., & Ditta, A. (2022). Forecasting Inflation, Exchange Rate, and GDP using ANN and ARIMA Models: Evidence from Pakistan. *Sustainable Business and Society in Emerging Economies*, 4(1), 25–32.
- Juanda, R., Risky, M., & Ilham, R. N. (2023). The Influence Of Growth Of Micro Small And Medium Enterprises (Umkm) And Unemployment On Growth Indonesian

Economy. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS)*, 3(1), 188–202.

Khairani, F., Kurnia, A., Aidi, M. N., & Pramana, S. (2022). Predictions of Indonesia Economic Phenomena Based on Online News Using Random Forest. *Jurnal Dan Penelitian Teknik Informatika*, 7(2), 532–540.

Li, M., & Xu, T. (2023). Short and Long Term Tourism Demand Forecasting Based on Baidu Search Engine Data. *Journal of Humanities, Arts and Social Science*, 7(3), 529–539.

Maccarrone, G., Morelli, G., Spadaccini, S., & Spadaccini, S. (2021). GDP Forecasting: Machine Learning, Linear or Autoregression? *Frontiers in Artificial Intelligence*, 4.

Mathers, M. (2023, January 31). *Why the UK economy is worse off than Russia and other EU countries*. The Independent.

Mohamed, A. O. (2022). Modeling and Forecasting Somali Economic Growth Using ARIMA Models. *Forecasting*, 4(4), 1038–1050.

Muma, B., & Karoki, A. (2022). Modeling GDP Using Autoregressive Integrated Moving Average (ARIMA) Model: A Systematic Review. *Open Access Library Journal*, 9(4), 1-8.

Olalekan, J. S., & Kamoru, J. (2020). Effect of Selected Macroeconomic Variables on the Nigeria Economy. *International Journal of Advanced Research*, 8(8), 1236–1242.

Saâdaoui, F., & Khalfi, M. (2022). Revisiting Islamic banking efficiency using multivariate adaptive regression splines. *Annals of Operations Research*.



Shahriar, S. A., Kayes, I., Hasan, K., Hasan, M., Islam, R., Awang, N. R., Hamzah, Z., Rak, A. E., & Salam, M. A. (2021). Potential of ARIMA-ANN, ARIMA-SVM, DT and CatBoost for Atmospheric PM2.5 Forecasting in Bangladesh. *Atmosphere*, 12(1), 100.

Sharma, S. P., R, J., & Deepa, K. (2022). Forecasting India S&P BSE SENSEX and USA S&P-500 Benchmark Indices Using SARIMAX and Facebook Prophet Library. *IEEE*, 1523–1530.

Smith, E. (2023, February 10). *UK narrowly avoids recession in back half of 2022 despite December slump*. CNBC.

Stockhammer, E., Hein, E., & Grafl, L. (2011). Globalization and the effects of changes in functional income distribution on aggregate demand in Germany. *International Review of Applied Economics*, 25(1), 1–23.

- Thiede, B., & Monnat, S. (2016). The Great Recession and America's geography of unemployment. *Demographic Research*, 35, 891–928.
- Uddin, I., & Rahman, K. U. (2022). Impact of corruption, unemployment and inflation on economic growth evidence from developing countries. *Quality & Quantity*, 57(2).
- Velidi, G. (2022). GDP prediction for countries using machine learning models. *Journal of Emerging Strategies in New Economics*, 1(1), 41–49.
- Voßemer, J., Gebel, M., Täht, K., Unt, M., Högberg, B., & Strandh, M. (2017a). The Effects of Unemployment and Insecure Jobs on Well-Being and Health: The Moderating Role of Labor Market Policies. *Social Indicators Research*, 138(3), 1229–1257.
- Wang, D., Gryshova, I., Kyzym, M., Salashenko, T., Khaustova, V., & Shcherbata, M. (2022). Electricity Price Instability over Time: Time Series Analysis and Forecasting. *Sustainability*, 14(15), 9081.
- Xue, T. (2022). Digital Infrastructure and Regional Economic Growth: An Empirical Study based on Random Forest Regression. *2022 2nd International Conference on World Trade and Economic Development (WTED 2022)*.
- Zhang, Y., Yang, H., Cui, H., & Chen, Q. (2019). Comparison of the Ability of ARIMA, WNN and SVM Models for Drought Forecasting in the Sanjiang Plain, China. *Natural Resources Research*, 29(2), 1447–1464.

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Original Research

Earnings Quality and Financial Performance of Kenyan Public Listed Non-Financial Firms

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Abstract

This study sought to address the effects of earnings quality on the financial performance of Non-financial firms listed at the Nairobi Securities Exchange(NSE). Three attributes of earnings quality; predictive value, feedback value, and earnings accruals quality, were adopted as measures of earnings quality. The study adopted returns on assets (ROA) to measure financial performance. A 5-year data (2018-2022) for the 44 non-financial firms listed in the Nairobi Securities Exchange were obtained from secondary data sources. The data were analyzed using Stata 17, and the findings showed that accrual quality and feedback value exhibited a significant positive relationship with financial performance. The predictive value of the earnings revealed an insignificant negative relationship with financial performance. The model was significant at a 10% significance level with a coefficient of 0.492. This implies that earnings quality constructs significantly and positively affect the performance of Kenyan public-listed non-financial firms. The findings of this study have important implications for users of financial information in ascertaining the importance of earnings quality on the performance of Kenyan public non-financial firms. This study is also beneficial to standard setters in Kenya that view the earnings quality as an indirect indicator of the quality of financial reporting standards that have been issued.

Keywords: Accruals quality, Earnings quality, Feedback value, Predictive value.

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Introduction

Existing literature identifies several attributes of reported income widely considered desirable characteristics of a firm's earnings (Barton et al., 2010; Francis et al., 2004). Earnings Quality of financial information has been a topical issue, especially after the major scandals of Enron and WorldCom Andreas (2007). The quality of earnings is usually defined in accounting studies from two perspectives: decision usefulness and economic-based perspectives. From a decision usefulness perspective, earnings quality is regarded as high if the earnings numbers are useful for decision-making. The earnings number acts as a summary measure of a firm's performance. Thus, the earnings number reported in a firm's financial statements must be reliable, relevant, and free from manipulation (Barragato and Markelevich 2008). Managers may manage earnings for many reasons, including capital market motivations, compensation, bonus, and debt or lending contracts, resulting in low-quality earnings.

Dechow and Schrand (2004) state that when earnings conform to the spirit and the rules of generally accepted accounting principles, they are of high quality in the eyes of regulators. Earnings should be free from fraud and show an accurate and fair view of a company's financial performance. However, standard accounting setters are also concerned with the effectiveness of the standards that they have promulgated. By focusing on the usefulness of earnings numbers to financial statement users, standard setters can evaluate the quality of earnings prepared under a particular set of accounting standards. Earnings quality can be referred to as the degree to which reported earnings capture a firm's economic reality. The quality of accounting information plays an essential role in reducing asymmetries between firms and investors (Elaoud & Jarboui, 2017)

Statement of the problem

Earnings quality has deteriorated over time, as evidenced by the deteriorating relationship between stock prices and earnings. The issue of earnings quality becomes essential before any reliance on published accounting information can be placed. To safeguard the investors' confidence in the capital and equity markets, NSE and CMA are retracting their mandate to instill discipline in the market players and protect investors' funds. Some firms, such as Uchumi supermarket, Haco Tiger, and Baumann and Company, have been found to have falsified their revenue, receivables, and tangible assets. These scandals lead to serious concerns about the quality and usefulness of reported earnings that users of financial information will use to evaluate their decisions.

Studies on the association between earnings quality and firm performance have been done in many countries (Elaoud & Jarboui, 2017; Pirveli, 2020). These studies suggest that the decline in the association between earnings and firm performance measures indicates a decline in the quality of earnings. However, there are few studies on the effect of earning quality on the financial performance of firms in the Kenya scenario. Thus, this study aims to systematically and explicitly examine the association between earnings quality and the financial performance of non-financial firms listed in NSE Kenya.

Literature Review and Hypothesis Development Theory

Dechow and Dechev (2002) introduced the quality of the accruals as a benchmark for income stability and accordingly believed that the more quality of accruals that a company has, the more its earning has stability, which is called earnings with quality. Elaoud and Jarboui (2017) discussed earnings with more accruals quality, and ERC is the earnings with the quality. Dang, Nguyen, and Tran (2020) believes that earnings with high-quality and less extraordinary accruals are quality earnings. Han, Rezaee, and Tuo (2020) believe that the earning that shows the effects of bad news and has a significant relationship with the stock price is the earning with quality. Therefore, whether accruals improve the predictive ability of earnings relative to cash flows is not clear. In practice, the incremental benefit of accruals is even less obvious. Accruals require estimation, and estimation error (intentional or unintentional) reduces the ability of earnings to reflect future cash flows. Thus, we hypothesize in H01 that there is no significant effect between the quality of accruals and the financial performance of non-financial firms in NSE Kenya.

Predictability is viewed as a desirable attribute of earnings because it increases the precision of earnings forecasts. The predictive value (PV) of earnings is measured in terms of the ability of earnings to predict future earnings. Svabova, Kramarova, Chutka, and Strakova (2020) introduced earning stability as the benchmark for earning quality. Accordingly, the income stability in the current period is a good signal of the quality of earnings in future periods. Pirveli (2020) have based their definition on the predictability of the earnings and mentioned that the earnings that have less vitality and are more predictable have more quality. It is suggested by Kimouche (2020) that disaggregation of earnings into its components may improve the predictive ability to estimate year-ahead earnings. Thus, we hypothesize in H02 that there is no significant effect between predictive value and financial performance of non-financial firms listed in NSE Kenya.

According to SFAC No. 2, feedback value refers to the ability of information to influence decisions by confirming or correcting earlier expectations of decision-makers (Mahmud, Ibrahim, & Pok, 2009). Feedback value (FV) is expected to affect firm performance positively. Since feedback value (FV) is a direct measure of earnings quality, a positive coefficient for FV indicates that as earnings quality increases, performance will increase. Thus, we hypothesize in H03 that there is no significant effect between feedback value and the financial performance of non-financial firms listed in NSE Kenya.

Data and Methods

To achieve the study objectives, a cross-sectional survey of the firm's design was adopted to carry out the study. The study population comprised all listed Non-financial firms at the Nairobi securities exchange in Kenya for the period of 2018 to 2022. This period was considered long enough to provide sufficient data to assist in the time series correlation of earnings quality and performance measures. The data collected was analyzed using multiple regression and correlation analysis to establish the relationship between the independent variables of earnings quality and the dependent variable of performance measures.

Operalization of Variables

Independent variables

1. Accrual Quality

To measure accrual quality, accrual estimation error was developed by Dechow and Dichev (2002) and modified in McNichols (2002) and Francis et al. (2005). This measure defines the quality of accruals as the extent to which they map into past, current, and future cash flows.

$$\Delta WC = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \beta_4 \Delta REV_t + \beta_5 PPE_t + \varepsilon_t$$

Where;

Where

$\Delta WC = \Delta CA - \Delta CL$ that is, the change in the current assets minus the change in current liabilities

$CFO = CFO$ is the cashflow from the operating activities of a firm measured at $t-1, t, t+1$

ΔREV = change in revenue between year $t-1$ and year t

PPE is the gross value of plant, property, and equipment

The error term shows the extent to which accruals map into realized cash flows, and the standard deviation hereof is a proxy for accruals quality. High variance in the estimation errors yields non-persistent earnings and is an inverse measure of earnings quality. The idea is that systematically small or large estimation errors do not create problems for users since they can still predict future earnings. Instead, a significant variation in the error term is less precise about mapping total current accruals into current, previous, and future cash flows. Because the variability of the residuals, not the magnitude, is the measure of accruals quality, it is expected that firms with low accruals quality will also have low earnings persistence. Dechow and Dichev (2002) do not distinguish intentional estimation errors from unintentional ones since all errors signify poor accruals quality, regardless of the underlying intent.

2. Predictive Value

Future current earnings predicted on current earnings

Predictive value is measured in terms of the ability of earnings to predict future earnings and future cash flows. To measure the predictive ability of earnings, the study employs Barua, (2006) model of return on assets, where future earnings are regressed on current earnings.

$$EARN_{i,t+1} = \alpha_0 + \beta_1 CFO_{i,t} + \beta_2 TAC_{i,t} + \varepsilon_{i,t}$$

Where;

$EARN_{i,t+1}$ Profit after tax of firm i in year $t+1$ deflated by average total assets

$CFO_{i,t}$ Cash flow from the operation of firm i in year t deflated by average total assets

$TAC_{i,t}$ Total accruals (the difference between cash flow from operation and earnings) of firm i in year t deflated by average total assets

$\varepsilon_{i,t}$ Prediction error

3. Feedback value.

In order to measure the feedback value of earnings, the following earnings prediction model employed by Kormendi and Lipe (1987) is used.

$$EARN_{i,t} = \alpha_0 + \beta_1 EARN_{i,t-1} + \varepsilon_{it}$$

Where,

$EARN_{i,t}$ - Profit after tax of firm i in year t deflated by average total assets Profit

$EARN_{i,t-1}$ - Profit after tax of firm i in year $t-1$ deflated by average total assets

ε_{it} - prediction error

Dependent Variable

Return on Assets was used in the research to determine the financial performance. The annual company financial statements obtained the total assets and net profits.

$$ROA = \frac{NetIncome}{AverageTotalAssets}$$

Measures of control variables

The research adopted leverage as a control measure due to the hypothesis that highly leveraged firms are likely to engage in opportunistic activities and manipulation to avoid breach of the debt covenant violation. According to this study, there is a negative correlation between leverage and the accuracy of financial reporting. In earnings management research, accounting for firm size is a common practice. Since a large firm typically has diversified or decentralized management decision-making, it is expected to have relatively higher discretionary accruals than a small firm. As a result, this study

anticipates that there will be a converse in the relationship between firm size and financial reporting quality. The natural logarithm of the total assets at the end of the period is used to calculate the size ($\ln it = \log (Ai,t)$).

Empirical Regression Models

To test our hypothesis on whether earnings quality in year t affects financial performance in year $t + 1$, we estimate the OLS regression as shown in the Equation.

$$ROA_i = \alpha_{i,t} + \alpha_1 ACC_{i,t} + \alpha_2 PRED_{i,t} + \alpha_3 FED_{i,t} + \text{Control variable}_{i,t} + \varepsilon_{i,t} \dots \dots \dots \text{Model 1}$$

Empirical results

Table 1. Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
ROA	.127	1.75	-10.234	32.681
ACC	0	4.758	-74.719	16.795
PRED	0	11.687	-175.398	116.685
FED	0	9.027	-170.278	4.432
Leverage	.629	.318	.001	1.8
Firm size	15.715	2.167	8.791	20.997

Table 1 presents descriptive statistics for the study variables: earnings quality, financial performance, and control variables. On average, Kenyan public listed non-financial firms according to the findings of this study exhibit a favorable performance in terms of return on assets (ROA). The mean ROA of 0.127 indicates that, on average, these companies are efficiently utilizing their assets to generate income. The research findings on the predictive value of earnings revealed a mean of 0.000. It implies that the absolute prediction error from the earnings regression model used is small, indicating that the predictive ability of current earnings to predict future earnings is high. Regarding the feedback value of earnings (FED), the mean is also 0.00. This finding suggests that the ability of the current year's earnings to change the prediction about next year's earnings is slightly low. The study reveals that the average firm size, represented by the natural log of 15.715, is relatively large. A higher value signifies that, on average, the Kenyan public listed non-financial firms are larger in size. The mean leverage ratio stands at 0.629, indicating a relatively high debt ratio among Kenyan public listed non-financial firms. On average, these firms rely significantly on debt for income generation and financial operations. The variability in leverage ratios maximum and minimum leverage ratios are 1.8 and -0.001, with some firms exhibiting very high debt levels (as indicated by the maximum value of 1.8) and the presence of a potential outlier with a negative ratio, which may require further investigation due to data anomalies.

Correlation Analysis

Table 2 shows the correlation matrix for all model variables, with Pearson coefficients of correlations as appropriate. The three proxies of earnings quality reveal a positive

correlation with financial performance. The correlation coefficients are below 1, indicating that these measures capture different earnings quality dimensions. This justifies using these three measures in our tests to increase the generalizability of our inferences. The data also indicate that the correlations between variables used in the model do not exceed the value of 0.77. This aligns with Gujarati (2009), who suggested that the correlation matrix should not exceed 80% to ensure any self-association problems.

Table 2. Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) ROA	1.000					
(2) ACC	0.799***	1.000				
(3) PRED	0.007	0.047	1.000			
(4) FED	0.014*	0.048	-0.001	1.000		
(5) Firm size	-0.058	0.044	0.041	-0.112**	1.000	
(6) Leverage	-0.001	0.023	0.012	-0.014	-0.126**	1.000
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$						

Table 2 provides the correlation matrices for the key variables. Based on the table, ROA is positively and significantly correlated with Accrual quality and feedback value (FED), whereas predictive value (PRED) is positively correlated with ROA though the relationship is insignificant. Large firms seem less profitable as the correlation between size and ROA negatively correlates with size. These findings are inconsistent with those of (Kimouche, 2020). Regarding leverage (Lev), ROA had a negative and insignificant correlation.

Multivariate Analysis

The Breusch-Pagan Lagrange Multiplier (LM) test, followed by the Hausman test, determines whether to use a random-effect regression or a simple OLS. The Hausman test is then used to distinguish between random and fixed effects. Finally, the association between the dependent variables (earnings quality) and the independent variables (financial performance) is estimated using panel regression with a random effect model.

Table 3. Earnings Quality and Financial Performance Model

	(1)	(2)	(3)	(4)	(5)
	ROA	ROA	ROA	ROA	ROA
ACC	0.109***	0.109***	0.109***	0.110***	0.110***
	(23.444)	(23.267)	(23.234)	(23.539)	(23.523)
PRED		-0.001	-0.001	-0.001	-0.001
		(-0.565)	(-0.554)	(-0.434)	(-0.423)
FED			0.004*	0.003	0.003*
			(1.710)	(1.415)	(1.393)
firm size				-0.026**	-0.027**

	(1)	(2)	(3)	(4)	(5)
				(-2.517)	(-2.573)
Leverage					-0.043
					(-0.620)
_cons	0.041*	0.042*	0.042*	0.453***	0.492***
	(1.842)	(1.811)	(1.827)	(2.749)	(2.784)
Observations	314	310	310	310	310
r2_w	0.621	0.610	0.613	0.616	0.617
<i>P-values are in parentheses.</i>					
*** $p < .01$, ** $p < .05$, * $p < .1$					

Accrual quality benchmarks income stability (Dechow and Dechev 2002). The more quality of accruals that a company has, the more its earnings stability. Accruals require estimation, and estimation error (intentional or unintentional) reduces the ability of earnings to reflect future cash flows. The financial performance of listed companies in the study sample could be predicted to be significantly impacted by accrual quality at the 0.01 significance level. Based on the results, H_{01} test specifications prove that accrual quality has a positive (0.110) significant coefficient with ROA. Thus, we fail to reject the null hypothesis H_{01} .

Earnings stability is a good index for predicting future earnings (Penman and Zhang 2002). Accordingly, the income stability in the current period is a good signal of the quality of earnings in future periods. According to the research findings, the predictive value of earnings reveals an insignificant negative relationship with ROA at 10% significance. Based on the results, H_{02} test specifications provide evidence that predictive value has a negative (-0.001) insignificant coefficient with ROA at a 10% significance level. Thus, we reject the null hypothesis H_{02} .

Feedback value refers to the ability of information to influence decisions by confirming or correcting earlier expectations of decision-makers (Mahmud, Ibrahim, & Pok, 2009). Feedback value (FV) is expected to affect firm performance positively. According to this research, earnings' feedback value reveals a significant positive relationship with ROA at 10% significance. Based on the results, H_{03} test specifications provide evidence that feedback value has a negative (+0.003) significant coefficient with ROA at a 10% significance level. Thus, we fail to reject the null hypothesis H_{03} .

The model was found significant at a 10% significance level with a coefficient of 0.492. This implies that earnings quality constructs significantly positively affect the performance of Kenyan publicly listed non-financial firms. Leverage was found to have a negative association with ROA. This result contrasts with the role of leverage as a disciplinary mechanism. The negative effect of leverage on performance is in line with the argument that debt commitments force the firm to forgo positive present-value projects and are consistent with those obtained by (Alexandridis, Antypas, Gulnur, & Visvikis, 2020; Han et al., 2020) and (Han et al., 2020). This study reports that firm size was negatively and significantly associated with firm performance based on ROA, suggesting that firms with more significant sales growth experience lower performance. This finding was inconsistent with that of Chen et al. (2005) and King and Santor (2008). However, it is argued that greater sales growth may lead firms to become diversified.

Nagarajan, Mohanty, and Khatua (2023) suggest that diversification negatively affects firm performance since diversified firms are prone to cross-subsidize investments and poor growth opportunities.

Summary and Conclusions

The study attempted to address whether the earnings quality of Kenyan publicly listed non-financial firms are associated with performance. Three attributes of earnings quality, namely predictive value, feedback value and accrual quality, and financial performance measure returns on assets (ROA), were examined. The accrual quality and financial performance findings revealed a significant positive association in the Kenyan-listed non-financial firms. The predictive value of earnings, according to the findings of this research, reveals an insignificant negative relationship with ROA at 10% significance. It means the earnings of Kenyan publicly listed non-financial firms are yet to show their predictive value.

Further, the feedback value of earnings, according to the findings of this research, reveals a significant positive relationship with ROA at a 10% significance. This implies that current earnings can influence decisions by confirming or correcting earlier expectations of decision-makers. Overall, the model is significant at a 10% significance with a coefficient of 0.492. This implies that high earnings quality earnings constructs result in high performance of Kenyan public listed non-financial firms. Moreover, after controlling the effects of firm-specific characteristics, this study revealed that the earnings quality of Kenyan publicly listed non-financial firms had a mixed association with their performance and did not affect the earnings quality significantly.

The findings of this study have important implications for users of financial information in such a way that they assist in ascertaining the importance of earnings quality association with firm performance in Kenya. This study is beneficial to standard setters in Kenya that view the earnings quality as an indirect indicator of the quality of financial reporting standards that have been issued. These findings have implications for several interested parties, including auditors, institutional investors, regulators, and policymakers, who assess how well corporate boards of directors supervise a company's financial reporting and disclosure procedures. Moreover, this paper recommends adopting better strategies for corporations and their corporate governance structures when communicating with audit committees and assessing their effectiveness in improving financial reporting quality and disclosure.

References

- Lee, H. Y., Mande, V., & Son, M. (2015). Are earnings announced early of higher quality? *Accounting and Finance*, 55(1), 187–212.
<http://doi.org/10.1111/acfi.12057>
- Mahmud, R., Ibrahim, M. K., & Pok, W. C. (2009). Earnings Quality Attributes and Performance of Malaysian Public Listed Firms. *SSRN Electronic Journal*, 1–25.
<http://doi.org/10.2139/ssrn.1460309>

- Akle, Y. A. (2011). the Relationship Between Corporate Governance and Financial Reporting Timeliness for Companies Listed on Egyptian Stock Exchange "an Empirical Study ." *Internal Auditing & Risk Management*, 2(2), 81–90.
- Anuar, K., & Wan Ismail, W. A. (2014). Earnings Quality Construct and Measures in Empirical Accounting Studies. *International Conference on Governance & Strategic Management (ICGSM)*, 2014, 0.
- Barth, M. E., Beaver, W. H., & Landsman, W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: another view,, (2001). The relevance of the value relevance literature for financial accounting standard setting: another view, *Journal of Accounting and Economics*, 31(1), 77–104.
- Barua, A. (2006). Using the FASB's Qualitative Characteristics in Earnings Quality Measures. Retrieved from Available at SSRN 815784.
- Bilinski, P. (2014). Do analysts disclose cash flow forecasts with earnings estimates when earnings quality is low? *Journal of Business Finance and Accounting*, 41(3–4), 401–434. <http://doi.org/10.1111/jbfa.12056>
- Callen, J. L., Khan, M., & Lu, H. (2013). Accounting Quality, Stock Price Delay, and Future Stock Returns* Accounting Quality, Stock Price Delay, and Future Stock Returns. *Contemporary Accounting Research*, 30(1), 269–295. <http://doi.org/10.1111/j.1911-3846.2011.01154.x>
- Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, 50(2–3), 344–401. <http://doi.org/10.1016/j.jacceco.2010.09.001>
- Dechow, P. M., & Schrand, C. M. (2008). *Earnings Quality*.
- Dufour, Y., & Steane, P. (2006). Competitive paradigms on strategic change: mapping the field and further research development. *Strategic Change*, 15(3), 129. <http://doi.org/10.1002/jsc>
- Francis, J., Olsson, P., & Schipper, K. (2008). Earnings Quality. *Foundation and Trends in Accounting*, 1(4).
- Klimczak, K. M. (2009). Testing Value Relevance of Accounting Earnings in Emerging Markets. *SSRN Electronic Journal*. <http://doi.org/10.2139/ssrn.1410053>
- Lee, H. Y., Mande, V., & Son, M. (2015). Are earnings announced early of higher quality? *Accounting and Finance*, 55(1), 187–212. <http://doi.org/10.1111/acfi.12057>
- Lee, J. (2012). The role of accounting conservatism in firms' financial decisions, 1–54.
- Liu, G., & Sun, J. (2015). Did the Mandatory Adoption of IFRS Affect the Earnings

Quality of Canadian Firms? *Accounting Perspectives*, 14(3), 250–275.
<http://doi.org/10.1111/1911-3838.12047>

Martínez-Ferrero, J. (2014). Consequences of financial reporting quality on corporate performance. Evidence at the international level* Consecuencias de la calidad de la información financiera en el rendimiento financiero. Evidencia para el ámbito internacional. *Estudios de Economía*, 41(1), 49–88. <http://doi.org/10.4067/S0718-5286201400010.002>

Perotti, P., & Wagenhofer, A. (2007). Earnings Quality Measures and Excess Returns
Earnings Quality Measures and Excess Returns, (December 2011), 1–47.

Perotti, P., & Wagenhofer, A. (2014). Earnings quality measures and excess returns. *Journal of Business Finance and Accounting*, 41(5–6), 545–571.
<http://doi.org/10.1111/jbfa.12071>

Pronobis, P., Schwetzler, B., Sperling, M., & Zuelch, H. (2006). Paul
Pronobis/Bernhard Schwetzler/Marco Sperling/Henning Zuelch □, 1–42.

Ranjan Kumar Mitra. (2016). The association between earnings quality and firm-specific return volatility Evidence from Japan. *Review of Accounting and Finance*, 15(3), 294–316. <http://doi.org/10.1108/RAF-08-2015-0100>

Šodan, S. (2015). The Impact of Fair Value Accounting on Earnings Quality in Eastern European Countries. *Procedia Economics and Finance*, 32(15), 1769–1786.
[http://doi.org/10.1016/S2212-5671\(15\)01481-1](http://doi.org/10.1016/S2212-5671(15)01481-1)

Sun, Q., Yung, K., & Rahman, H. (2012). Earnings quality and corporate cash holdings. *Accounting and Finance*, 52(2), 543–571. <http://doi.org/10.1111/j.1467-629X.2010.00394.x>

Venter, E. R., Emanuel, D., & Cahan, S. F. (2014). The value relevance of mandatory non-GAAP earnings. *Abacus*, 50(1), 1–24. <http://doi.org/10.1111/abac.12020>



Alexandridis, G., Antypas, N., Gulnur, A., & Visvikis, I. (2020). Corporate financial leverage and M&As choices: Evidence from the shipping industry. *Transportation Research Part E: Logistics and Transportation Review*, 133, 101828.

Dang, H. N., Nguyen, T. T. C., & Tran, D. M. (2020). The impact of earnings quality on firm value: The case of Vietnam. *Journal of Asian Finance, Economics and Business*, 7(3), 63-72.

Elaoud, A., & Jarboui, A. (2017). Auditor specialization, accounting information quality and investment efficiency. *Research in International Business and Finance*, 42, 616-629.

Gujarati, D. (2009). N., and Dawn C., Porter,(2009). *Basic econometrics*, 5, 1-15.

- Han, S., Rezaee, Z., & Tuo, L. (2020). Is cost stickiness associated with management earnings forecasts? *Asian Review of Accounting*, 28(2), 173-211.
- Kimouche, B. (2020). The Persistence of Accounting Accruals Components: An Empirical Study of Some Algerian Companies. *الإقتصادية العلوم معهد مجلة*, 23(2), 1413-1432.
- Nagarajan, V., Mohanty, P., & Khatua, A. (2023). Financing effects of corporate diversification: A review. *Review of Managerial Science*, 17(7), 2555-2585.
- Pirveli, E. (2020). Earnings persistence and predictability within the emerging economy of Georgia. *Journal of Financial Reporting and Accounting*, 18(3), 563-589.
- Svabova, L., Kramarova, K., Chutka, J., & Strakova, L. (2020). Detecting earnings manipulation and fraudulent financial reporting in Slovakia. *Oeconomia Copernicana*, 11(3), 485-508.

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Original Research

The Obstacles of Using Qualitative Approach in Accounting Research: Perceptions of Accounting Departments' Faculty Members of Libyan Universities

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Abstract

Although the qualitative approach has been recognized as an effective approach to link accounting research with accounting practices and accounting education, the accounting research is still dominated by the quantitative approach. The unpopularity of the qualitative approach in accounting research is attributed to several obstacles related to individuals, management, and the nature of the qualitative approach. Therefore, the primary objective of this study is to investigate the obstacles of the use of the qualitative approach in accounting research that come from accounting faculty members, management of universities, and the nature of qualitative research. In order to achieve the objectives of the study, the analytical descriptive approach was used based on a questionnaire which was distributed to 60 accounting faculty members at different academic ranks at Libyan universities. The data was analyzed by descriptive statistics and One Sample T Test and one sample Wilcoxon Singed Rank Test. The results of the study showed that the three selected obstacles of using the qualitative approach in accounting research are facing accounting faculty members at Libyan universities and they are statistically significant. The main obstacle is the management of Libyan universities, followed by the accounting faculty members, and finally the obstacles related to the nature of the qualitative approach.

Keywords: Accounting Research, Libyan Universities, Obstacles of Qualitative Research.

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Introduction

The scientific research has been considered as an important tool which is used to ensure nations' progress and prosperity (Hatamleh, 2016). The main goal of scientific research is to find a solution to any particular problem, to obtain accurate and new knowledge and information through testing and building theories, also to develop new products and methods through introduction of general principles of new knowledge or ideas (Aedh and Elfaki, 2019). Therefore, many countries have recognized the importance of scientific research and as a result set programs to finance scientific research, possess skilled human resources and open research centers, universities, and other higher education institutions (Elshikhi and Elshikhi, 2020).

Generally, in social science research and particularly accounting research two research methodologies are used which are quantitative research and qualitative research (Parker, 2012). Accounting research plays an important role in evaluating the relevance of the current accounting practices in relation to measurement, communication, and disclosure with accounting goals, thus developing new accounting practices which fulfill the changing demands of economical, commercial, technological, and social factors (Zagoub and Alnakkat, 2018). However, many researchers accused accounting research of not being able to improve accounting practices and the main reason is that most accounting research are based on quantitative research methods (Basri, 2014; Damayan, 2013; Handayati and Alhaleh, 2021; Inanga and Schneider, 2005; Mohamed and Metwally, 2019; Wahyudi, 1999).

The dominance of quantitative research in accounting and management research has been criticized by many scholars in the literature in terms of linking accounting research, accounting education, and accounting practices (Damayant, 2013). The mainstream accounting research methodology or the hypothetico-deductive approach which is the foundation of quantitative research assumes that human beings are passive objects and has no power to create social realities and consequently accounting is considered as an objective information separated from its social environment. This belief of mainstream accounting research has limited the development of accounting practices and accounting research. Therefore, separated them from each other where the goal is to make linkage between accounting research and accounting practice (Wahyudi, 1999). Based on the mainstream accounting research there is an assumption that social science is not different from natural science and it can be studied in the same way as physical object (Basri, 2014). The mainstream accounting research tools are incapable of capturing the core business activities and making in depth analysis of accounting practices in different context (Mohamed and Metwally, 2019). Therefore, for many scholars it is clear that quantitative research is not the ideal research methodology can be used to uncover accounting practices, instead they believe that qualitative research methodology is better choice to improve accounting practices.

For instance, (Handayati and Alhaleh, 2021) argued that qualitative research is better than quantitative research to study accounting issues for the reason that, qualitative research allows for a direct contact with accountants to first obtain the right information, second to obtain ideas that explain, and analyze the problem and the questions of the

research and build better knowledge of accounting. Qualitative research offers rich analysis of accounting and management practices in organizations (Basri, 2014). Qualitative research provides detailed in-depth insights of an accounting practice that is not found in the literature (Richardson, 2012). Qualitative research is research conducted in natural setting that exist in real life in order to explore and understand the phenomena, by exposing the questions of what happened, why it happened, and how it happened (Damayant, 2013). Qualitative research takes a holistic or complete approach to understand an accounting phenomena and helps to suggest a theory to explain the accounting phenomena being studied (Shareia, 2015). Therefore, it is obvious that there some scholars who are calling for considering qualitative research in accounting research. They do not assume that qualitative research is better or should replace quantitative research, they argue that there should be a balance between qualitative and qualitative research so they could complement each other to have better output of accounting research.

Due to the calls by many scholars to consider qualitative research in accounting research because of its importance in gaining in-depth understanding about accounting practices (Basri, 2014; Damayan, 2013; Handayati and Alhaleh, 2021; Inanga and Schneider, 2005; Mohamed and Metwally, 2019; Wahyudi, 1999), yet the output of qualitative research is still humble compared to quantitative research in the accounting literature. It must be acknowledged that quantitative method is still the most widely used approach in conducting any research in the field of accounting (Basri, 2014). Also, in the Libyan context (Zagoub and Alnakkat, 2018) conducted a study to determine the trends of accounting research and they analyzed the Libyan business journals from 1965 to 2018 and they found only 9 research papers in the accounting field which used qualitative research that signals lack of acceptance and unpopularity of qualitative research among accounting researchers in Libya.

It seems that there are many obstacles that face the use of qualitative research methodologies in accounting research. Most accounting researchers do not focus on what is becoming a problem in accounting practices, rather the focus is on academic career and reputation, which lies in the achievement of publications at leading journals which favor quantitative research methods (Damayant, 2013). Besides that, many business schools in the world are preoccupied with quantitative research methods in their higher education programs which results in graduates that only undertake accounting research using quantitative research methods (Gummesson, 2000). The majority faculty members of universities are also unacquainted with qualitative research methodologies and as a result they prefer quantitative research methods (Basri, 2014). Also, accounting researchers face many obstacles when conducting the field study (Shareia, 2015), that lead to researchers want to avoid such research methods. Therefore, it is clear that the use qualitative research in accounting research is facing many obstacles which are related to faculty members and researchers in terms of the required skills and stance, obstacles with respect to the management of universities in terms of supporting qualitative research, and there are obstacles which are relevant to the nature of qualitative research such as the obstacles of conducting a field study, complexity of qualitative research methods, and the acceptance of qualitative research methods by different stakeholders.

As a result of the importance of using qualitative research in accounting is clear in terms of solving practical accounting problems and because the use of qualitative research in accounting is limited and facing many obstacles, this study seeks to investigate the obstacles of using the qualitative approach in accounting research from the perspective of accounting faculty members of Libyan universities by achieving three objectives. The first objective is to investigate the obstacles which are related to faculty members of accounting departments of Libyan universities. Second, to investigate the obstacles of using the qualitative approach in accounting research which are with regards to the management of the university. Finally, to investigate the obstacles of using qualitative research in accounting research which relevant to the nature of qualitative research.

This study contributes to the accounting literature on the theoretical level and the practical level as well. On the theoretical level, the study extends previous accounting literature by exploring the obstacles of using qualitative research in accounting from the perspective of accounting faculty members, an issue which has received little attention in the accounting literature in general, and the Libyan accounting literature in particular. Also, the study highlights the importance of qualitative research in gaining in-depth understanding of accounting practices, which cannot be captured by quantitative research. Furthermore, the study indicates the real obstacles that accounting researchers face so that could pave the way for future research in accounting in other countries. However, on the practical level the results of the study inform policy maker of ministry of education and Libyan universities about the obstacles of using the qualitative approach in accounting research. In addition to that, the deans of economics faculties and heads of accounting departments could use the results of the study to overcome the obstacles of using the qualitative approach in accounting research in order to address the practical issues of accounting more effectively.

Literature Review

The issue of studying the obstacles of scientific research in general, and studying the obstacles of using the qualitative approach in particular has received considerable attention in social science literature in high developed countries and less developed countries. For instance, (Elshikhi and Elshikhi, 2020) conducted a study in Libya which aims to determine the obstacles of scientific research in Benghazi University from the perspective of faculty members of human sciences colleges. Data was collected using questionnaires which were distributed to 261 faculty members from different colleges. The findings revealed that there are several obstacles which have been found statistically significant which are obstacles related to the management of the university, obstacles with regard to faculty members, obstacles related to financing scientific research, and social obstacles.

(Anefro, 2022) attempted to identify the obstacles of scientific research in economic sciences in the Libyan context. The data was gathered using questionnaires which were distributed to the faculty members of the faculties of economics of Mistrata University and Almergab University, based on 76 responses. The findings of the study revealed that the most important obstacle is the lack of proper and accurate database, also the findings showed obstacles to scientific research related to the management of the university and colleges such as academic load which discourage faculty members to do research. Finally,

the lack of financing scientific research at Libyan universities found to be very important obstacle to scientific research.

(Aljazwi et al, 2021) explored the obstacles of scientific research the face faculty members of managerial and financial specializations in higher education institutions in Libya. The data was collected based on 122 questionnaires from faculty members of higher education institutions, the findings revealed that the major obstacles faced by faculty members in the Libyan context are academic obstacles, management obstacles, economic obstacles, data collection obstacles, and journal publication obstacles.

In addition, (Gomear, 2020) explored the extent of the availability of the Libyan accounting scientific research characteristics and considered three elements which are the research, the researcher and the research environment, based on 75 questionnaire gathered from accounting faculty members of three Libyan universities which are Tripoli University, Alzawia University, and Sebrata University, the results indicated that the availability of the characteristics of scientific research in the published Libyan accounting research, as well as the availability of the characteristics of scientific researchers in the Libyan accounting researcher. However, results illustrated the lack of suitable research environment characteristics in the Libyan accounting research environment.

(Altewel and Rashwan, 2019) investigated the challenges and the obstacles of sustainability of scientific research and ways to develop it in the accounting departments in the Palestinian universities. Using 40 questionnaires were distributed to accounting faculty members of Palestinian universities, the results showed that the major obstacles are the lack of incentives for rewarding the performance of Palestinian accounting faculty members for their research as well as the lack of covering the costs of scientific research performed by accounting faculty members in the Palestinian universities.

(Aedh and Elfaki, 2019) investigated the challenges that face scientific research based on a meta-analysis of 138 article published in top journals. The analysis showed that the major challenges that face scientific research include scarcity of resources and funding, lack of motivation, lack of training, guidance and supervision, organizational obstacles and difficulties when collecting data.

(Hatamleh, 2016) explored the obstacles of scientific research that face faculty members of University of Jadara, 100 questionnaires were distributed to faculty members and the study was conducted. The findings revealed that the field of financial and administrative obstacles were the most important field, followed by the obstacles of fields of scientific research skills, then the obstacles related to the field of research arbitration, after that is the obstacles of publication of the research.

In addition to this stream of research which investigated the obstacles of scientific research in general, there is a stream of research which explored the obstacles of qualitative research in different disciplines of social sciences including accounting. For example, (Al-Zayde, 2019) investigated the obstacles of using the qualitative approach connected with educational management and leadership research from the perspective of faculty members of Saudi universities. The study used 101 questionnaires obtained from faculty members and nine semi-structured interviews. The findings revealed that, the

most important obstacles included are lack of training programs of qualitative research and lack of emphasis on the qualitative approach in higher education programs, compared to the quantitative approach. The obstacles also included resistance to change by some faculty members, lack of translated books about qualitative research methods, and lack of consciousness of the importance of qualitative research in education. The results of the study also showed significant differences between means of scores obtained by faculty members according to gender and in favor of the male group. However, there were no significant differences between means of scores obtained by faculty members of the sample according to academic degree or university.

(Al-Mousa, 2019) investigated the obstacles that limit the use of the qualitative approach in the fundamentals of education research in the Saudi universities, based on 108 questionnaire distributed to faculty members of education. The results showed that the quantitative research gains prevalence more than the qualitative research in relation to the scientific theses in the fundamentals of education research in the Saudi universities; moreover, there were few studies adopted the qualitative research, the post graduate students showed sever weakness concerning the qualitative research due to the preparation courses offered to the postgraduate students specialized in the fundamentals of education in the Saudi universities. The lack of qualitative research culture, the scarcity of experts specialized in qualitative research in Saudi universities and the usage of quantitative research more than the qualitative one are important obstacles. Furthermore, the university faculty members are less satisfied regarding the prominence of the qualitative research, the training weakness of postgraduate students on qualitative research in the theoretical and practical dimensions and the fear of the postgraduate students regarding the difficulty of the qualitative research and the length of implementation time.

(Al-Qahtani, 2020) investigated the most important obstacles to the use of qualitative research methods that face faculty members and researchers at the College of Education of King Saud University, based on 130 questionnaires, which was distributed to faculty members at the rank of professor, associate professor, and assistant professor from the Education College. The results showed that the most important obstacles are psychological, training, skill, and field, and they showed statistically significant differences in the response of the sample in favor of males and those with a lower academic rank.

Additionally, (Mohammed, 2020) explored the obstacles of using the qualitative approach from the perspective of education faculty members of Egyptian universities, based on 21 interview with faculty members from the educational. The results revealed that there are several obstacles which are insufficient preparation and training of graduate students to be able to conduct qualitative research, graduate students' reluctance to qualitative research because they prefer to repeat the same curricula that they were trained on, the lack of interest by the management to conduct scientific conferences and seminars on qualitative research, the inability to prepare good researchers who can use qualitative research tools effectively, the dominance of the quantitative approach in the literature and higher education programs.

In the accounting literature, there are few studies which discuss the obstacles of using qualitative research methods in accounting research. For instance, (Handayati and Alhaleh, 2021) conducted a study to determine the challenges of using qualitative research in accounting based on review of the literature. The researchers found several obstacles that could limit the use of qualitative research in accounting research most obstacles are related to the implementation of the study. The main obstacle of qualitative research is the difficulty of researchers' accessibility to the organizational lingual, cultural, and social norms. This is very important in the case study research in which researchers face challenges to gain organizational access such as the difficulty of getting acceptance to observe formal meetings, access to organizational documents, and distributing questionnaires which are important for triangulation and validity issues. Another obstacle is the differences in cultural and language aspects which could result in misunderstanding of meaning between researchers and participants which could affect the validity of the study. There are obstacles to accounting research which are related to interviews and the major obstacles are getting acceptance to make interviews and recording the interviews which is important for transcribing and analyzing the interviews. Some obstacles are related to ethical qualitative research issues and it could happen if participants provide misleading or vague information regarding accounting practices, which result in weak qualitative research output. In addition, the lack of experience, skills, foundation, and knowledge of qualitative research methodology could limit the original knowledge formation and understanding of accounting phenomenon. Another obstacle is the difficulty of deciding on the proper qualitative research methodology which suits the accounting topic under research and answers the research question of the study. Another obstacle is the possibility of data manipulation in the data collection and data analysis stages in line with the personal interests of the researcher which result in bias. Also, the issues of reliability and validity in qualitative research are considered important obstacles. Finally, qualitative research demands a lot of time and effort to be completed.

(Shareia, 2015) elaborated the challenges and prospects of qualitative case study research in accounting in the Libyan context. Based on review of the literature and the researcher own experience the study was conducted. The findings revealed that there are several challenges that could face accounting qualitative researchers in conducting case studies in Libya which are accessibility to organizations, conducting and recording interviews, accessing documents and observing official meetings, language and cultural challenges, the use of consent forms, issues affecting access to companies, respondent issues, and data analysis.

The literature review has indicated that these studies can be categorized into three categories. The first line of research has explored the obstacles of scientific research in different disciplines including accounting and these studies have focus on individuals' obstacles of faculty members such as skills and knowledge, obstacles related to the management of educational institutions, financial obstacles, and social obstacles and other obstacles (Aedh and Elfaki, 2019; Aljazwi et al, 2021; Altewel and Rashwan, 2019; Anefro, 2022; Elshikhi and Elshikhi, 2020; Gomear, 2020; Hatamleh, 2016). The second line of research focused on the obstacles of qualitative research in different social science disciplines such as education and leadership and these studies have focus on individual obstacles of faculty members, obstacles related to the management of educational institutions, financial obstacles, obstacles related to the nature of qualitative research (Al-

Mousa, 2019; Al-Qahtani, 2020; Al-Zayde, 2019; Mohammed, 2020). While, accounting research focused on field obstacles which could limit the use of qualitative research methodologies in accounting studies (Handayati and Alhaleh, 2021; Shareia, 2015).

It is clear that the obstacles issue with using the qualitative approach in accounting research has not been explored as in other disciplines in other social science, therefore this study goes beyond field obstacles as considered in the accounting literature to consider other obstacles such as the obstacles which are investigated in social science and the obstacles of scientific research such as obstacles related to the management of educational institutions, financial obstacles, obstacles related to the nature of qualitative research including field obstacles. The current study conceptualizes the obstacles of using the qualitative approach in accounting research based three broad dimensions which are obstacles related to accounting faculty members such as skills and attitudes, obstacles related to the management of the university such as administrative and financial obstacles, and obstacles related to the nature of qualitative research such as field obstacles and the challenging aspects of qualitative research. Accordingly, the following three null testable hypotheses are suggested:

H₁: There are no obstacles of using the qualitative research related to accounting faculty members

H₂: There are no obstacles of using the qualitative research related to the management of the university

H₃: There are no obstacles of using the qualitative research related to the nature of qualitative research

Research Procedures

The section discusses the research methodology and the procedures which have been taken throughout the research process.

The Research Design and Strategy

In order to identify the obstacles of using qualitative approach in accounting research from the point of view of the accounting lecturers of Libyan universities the analytical descriptive approach was adopted, based on survey design and quantitative research methods.

Population and Sample of the Study

The population of this study are the faculty members of the accounting departments of the Libyan public universities which totaled almost 25 public universities. Communication was made by the researcher to the accounting departments of the Libyan public universities and an electronic questionnaire using Google Forms was sent to get responses from the accounting lecturers of the Libyan universities. This have resulted in 61 questionnaires from accounting lecturers from 9 universities across Libya. Therefore, it could be said that the responses of 9 universities could be representative of accounting departments of Libyan public universities.

The Questionnaire of the Study

As mentioned earlier, the study adopts the analytical descriptive approach based on survey design. Therefore, based on the literature review the researcher designed a questionnaire in order to collect the data regarding to the obstacles of using the qualitative approach in accounting research from the Libyan public universities accounting faculty members. The questionnaire was designed in Arabic language to collect the data, and in the analysis stage was translated into English language. The questionnaire was divided into two main parts. The first part was dedicated to collect data regarding the personal information about the respondent namely, (academic qualification, years of experience, academic degree, and university name). The second part of the questionnaire collects data for the main issue of the study which is the obstacles of using the qualitative approach in accounting research from the perspective of accounting lecturers of Libyan universities based on 38 items, that were adopted from previous studies in particular (Al-Mousa, 2019; Al-Qahtani, 2020; Al-Zayde, 2019; Handayati and Alhaleh, 2021; Mohammed, 2020; Shareia, 2015). The second part of the questionnaire was divided into three dimensions as follows:

- a) The first dimension collects data related to the obstacles, of using qualitative research in accounting research, which are related to the faculty members of accounting departments of Libyan universities and is consists of 13 items.
- b) The second dimension collects data related to the obstacles, of using qualitative research in accounting research, which are related to the management of the university and is consists of 10 items.
- c) The third dimension collects data related to the obstacles, of using qualitative research, which are related to the nature of qualitative research and is consists of 15 items.

The answers on the items of the questionnaire were measured based on five-point likert scale: 1 disagree, 2 disagree, 3 neutral, 4 agree, and 5 strongly agree. indicated in table (1) as follows:

Table 1. Five-point likert scale degrees

Likert-scale	1	2	3	4	5
Likert-scale description	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

The Exploratory Study of the Questionnaire

This section discusses the procedures which have been taken to ensure the reliability and validity of the questionnaire. The exploratory study is consisting of the pre-testing, and the pilot study which tested the reliability and construct validity of the instrument.

Pre-Testing

A pre-testing of the first draft of the questionnaire was conducted with 3 accounting faculty members from Benghazi University. Discussions were subsequently held with

each of them. A revised draft of the questionnaire was prepared in the light of their suggestions and comments. The final draft of the questionnaire was used for pilot testing in order to evaluate the reliability and construct validity of the instrument.

Reliability of the Questionnaire

In order to test the reliability of the questionnaire, Cronbach's alpha was used as a measure of inter-item reliability estimate. Table (2) indicates the results of Cronbach's alpha reliability test.

Table 2. Reliability Test Results

No	Dimension	Items	Alpha
1	Obstacles of using qualitative approach in accounting research, related to faculty members	13	.914
2	Obstacles of using qualitative approach in accounting research, related to the Management of the university	10	.903
3	Obstacles of using qualitative approach in accounting research, related to the nature of qualitative research	15	.926

The results in Table (2) indicates the Cronbach alpha coefficients for all dimension ranged from .903 to .926, which show a high degree construct reliability. Therefore, it is concluded that the questionnaire is highly and suitable to conduct the study.

Construct Validity of the Questionnaire

Construct validity was computed using Pearson Correlation for each aggregated dimension and the questionnaire as a whole. Table (3) indicates that all Pearson Correlation Coefficients for all dimensions are highly and significantly correlated with the questionnaire as a whole at 0.01 level.

Table 3. Pearson Correlation Coefficients between the Aggregated Dimensions and the Questionnaire as a Whole

No	Aggregated Dimension	Correlation Coefficient	P-Value
1	Obstacles of using qualitative approach in accounting research, related to faculty members	.833	0.000
2	Obstacles of using qualitative approach in accounting research, related to the Management of the university	.855	0.000
3	Obstacles of using qualitative approach in accounting research, related to the nature of qualitative research	.830	0.000

Therefore, it can be concluded that the questionnaire measures what is designed for and the validity of the constructs are acceptable. Accordingly, the researcher has confirmed the reliability and validity of the questionnaire are acceptable and decided to continue data analysis and hypothesis testing.

Research Findings

This section discusses and presents the procedures and statistical test, which used for data analysis and hypothesis testing based on the data gathered from the questionnaire. The data analysis was conducted using (SPSS) in order to derive the results of the study and test its hypotheses.

Descriptive Statistics Results

Descriptive statistics analysis was used to analyze the personal information for the respondents based on frequencies and ratios, and to analyze the items of the dimensions as well as the aggregated dimensions of the study based the mean, standard deviation, relative importance, and rank of the items.

Descriptive Statistics of Personal Information of the Respondents

Table (4) shows the descriptive statistics for 61 respondents to the study based on personal information, which are (academic qualification, years of experience, academic degree, and university name) using frequencies and percentages.

Table 4. Personal Information of the Respondents

Particulars	Category	Frequencies	Percentage %
Academic Qualification	Mater of Accounting	31	50.8
	PhD OF Accounting	30	49.2
Total		61	100%
Years of Experience	5 -10 years	10	16.4
	10 – 15 years	26	42.6
	15 – 25 years	18	29.5
	More than 25 years	7	11.5
Total		61	100%
Academic Degree	Assistant lecturer	12	19.7
	Lecturer	19	31.1
	Assistant professor	16	26.2
	Associated professor	9	14.8
	Professor	5	8.2
Total		61	100%
University Name	Benghazi University	23	37.7
	Omar Almoktar University	9	14.8
	Ajdabya University	6	9.8
	Tripoli University	10	16.4
	Almergab University	1	1.6
	Sebha University	4	6.6
	Alzawia University	5	8.2
	Alsedra Gulf University	1	1.6
	Toburk University	2	3.2
Total		61	100%

Table (4) indicates the academic qualification is fairly distributed among the sample, where 50.8% of the respondents hold masters of accounting and 49.2% hold PhD of accounting. Also, 16.4% of the respondents have experience from 5 to 10 years, 42.6% have experience from 10 to 15 years, 29.5% have working experience from 15 to 25 years, and 11.5% have experience for more than 25 years. Regarding the academic rank of the respondents, the results showed that 19.7% of the respondents are assistant lecturers, 31.1% are lecturers, 26.2% are assistant professors, while 14.8% are associated professors, and 8.2% are full professors. Finally, respondents from Benghazi University represented 37.7%, 14.8% were from Omar Almoktar University, 9.8% were from Ajdabya University, 16.4% were from Tripoli University, 1.6% was from Almergab University, 6.6% were from Sebha University, 8.2% were from Alzawia University, 1.6% was from Alsedra Gulf University, and 3.2% were from Toburk University.

Descriptive Statistics for the Dimensions of the Study

This section discusses and presents the descriptive statistics for the items of the three main dimensions as well as their aggregated dimensions. Considering that 3 is the average mean response for each obstacle included in the dimensions of the study, items scored above average assumed to be important obstacles. Table (5) presents descriptive statistics of items of the first dimension and the aggregated dimensions which represents the obstacles of using qualitative approach in accounting research, related to faculty members of accounting departments of Libyan universities from the perspective of accounting faculty members.

Table 5. Obstacles of Using Qualitative Approach in Accounting Research, Related to Faculty Members of Accounting Departments of Libyan Universities

No	Item	Mean	Std. Deviation	Relative Importance	Item rank
1	Unconvinced with qualitative research significance	2.77	1.23	55.4%	13
2	Not encouraging students to use qualitative approach	3.45	1.05	69%	6
3	Unwillingness to deviate from accounting mainstream research	3.32	1.17	66.4%	8
4	Change resistant to depart from quantitative research	3.37	1.09	67.4%	7
5	Weakness in qualitative research skills of faculty members	3.52	1.10	70.4%	2
6	Unconvinced that qualitative research can generate robust scientific results	3.16	1.08	63.2%	11
7	Conviction of qualitative research is not suitable for academic promotion	3.03	1.16	60.6%	12
8	Lack of training on qualitative research methods	3.54	1.05	70.8%	1
9	Inability to analyze qualitative data	3.49	1.01	69.8%	3

No	Item	Mean	Std. Deviation	Relative Importance	Item rank
10	Inability to determine the appropriate qualitative research tools to answer research questions	3.45	0.97	69%	5
11	Inability to use inductive approach	3.47	1.02	69.4%	4
12	Fear of being bias in data collection and analysis	3.16	1.03	63.2%	10
13	Fear of not building trust with participants	3.27	0.98	65.4%	9
	Aggregated dimension	3.31	0.75	66.2%	-

As shown in Table (5) most of the obstacles under this dimension scored about average except for the first item scored under the average. The results suggest that most of these obstacles perceived as important obstacles to the use qualitative approach in accounting research which are related to accounting faculty members. The results in Table (5) indicated that the most important obstacle under this dimension is the item number 8 which is the lack of training on qualitative research methods, for accounting faculties, has a mean of 3.54 and a standard deviation of 1.05 and the relative important of this item is 70.8% and ranked as the first important obstacle. Followed by the 5th item which is weaknesses in the qualitative research skills of accounting faculty members and has a mean of 3.52 and a standard deviation 1.10 and relative importance of 70.4% and ranked as the second most important obstacle. The third most important obstacle is the item number 9 which is the inability of accounting faculty members to analyze qualitative data has a mean of 3.49 and a standard deviation of 0.97 and relative importance of 69.8%. Followed by the item number 11 which is the inability to use the inductive approach has a mean 3.47 and a standard deviation of 1.02 and relative important of 69.4% and ranked as the 4th most important obstacle under this dimension. The 5th most important obstacle is stated in the item number 10 which is the inability to determine the appropriate qualitative research tools to answer research questions has a mean of 3.45 and a standard deviation of 0.97 and relative importance of 69%. Followed by the item number 2 which is the is not encouraging students to use qualitative research methods has a mean of 3.45 and a standard deviation of 1.05 and relative importance 69% and ranked as the 6th most important obstacle under this dimension.

The 7th most important obstacle is item number 4 which is change resistant by accounting faculty members has a mean 3.37 and a standard deviation of 1.09 and relative importance of 67.8.4%. The 8th most important obstacle is item number 3 which is the unwillingness of accounting faculty members to deviate from accounting mainstream research methods which is quantitative research methods has mean of 3.32 and a standard deviation of 1.10 and relative importance of 66.4%. The 9th most important obstacle is item number 13 which is the fear of not building trust with participants has a mean of 3.27 and a standard deviation of 0.98 and relative importance of 65.4%. followed by the item number 12 which is the fear of being bias in data collection and analysis has a mean of 3.16 and a standard deviation of 1.03 and relative importance of 63.2% and ranked as the 10th most important obstacle under this dimension. The 11th most important obstacle is item number 6 which is accounting faculty members are unconvinced that the qualitative approach can generate robust scientific results has a mean of 3.16 and a

standard deviation of 1.08 and relative importance of 63.2%. Followed by the item number 7 which is the conviction of accounting faculty members that qualitative research is not suitable for academic promotion has a mean of 3.03 and a standard deviation of 1.16 and relative importance of 60.6% and ranked the 12th most important obstacle under this dimension. The least and last important obstacle is the first item which is accounting faculty members are not convinced with the importance of qualitative research has a mean of 2.77 and a standard deviation of 1.23 and relative importance of 55.4%.

Regarding the mean of the aggregated dimension is 3.31 and a standard deviation of 0.75 and relative importance of 66.2%, which suggests that there are obstacles of using the qualitative approach in accounting research which are related to accounting faculty members of Libyan universities. Table (6) presents descriptive statistics of items of the second dimension and the aggregated dimension which represents the obstacles of using qualitative approach in accounting research, related to the management of Libyan universities from the perspective of accounting faculty members.

Table 6. Obstacles of Using Qualitative Approach in Accounting Research, Related to the Management of Libyan Universities

No	Items	Mean	Std. Deviation	Relative Importance	Item rank
1	Lack of Arabic references about qualitative research	3.27	1.06	65.4%	8
2	Lack of translated references to Arabic about qualitative research	3.26	1.06	65.2%	9
3	Unavailability of qualitative data analysis software at the university	3.39	1.00	67.8%	7
4	Lack of focus in higher education programs on qualitative research compared to quantitative research	3.65	1.06	73%	3
5	Lack of training programs about qualitative research	3.72	1.03	74.4%	2
6	Lack of conferences and workshops about qualitative research	3.73	1.04	74.6%	1
7	Inadmissibility of qualitative research for academic promotion	3.22	1.05	64.4%	10
8	Lack of expertise specialized in qualitative research	3.50	0.94	70%	6
9	Lack of orientation by the university to appoint quantitative research expertise	3.62	0.93	72.4%	4
10	Lack of incentives to encourage the use of qualitative research	3.60	1.06	72%	5
	Aggregated dimension	3.50	0.75	70%	-

As shown in Table (6) all of the obstacles under this dimension scored about average. The results suggest that most of these obstacles perceived as important obstacles to the use qualitative approach in accounting research which are related to the management of

Libyan universities from the perspective of accounting faculty members. The results in Table (6) indicated that the most important obstacle under this dimension is the item number 6 which is the lack of conferences and workshops about qualitative research and has a mean of 3.73 and standard deviation of 1.04 and relative importance of 74.6%. The second important obstacle related to the management is item number 5 which is lack of training programs about qualitative research has a mean of 3.72 and standard deviation of 1.04 and relative importance of 74.4%. Followed by item number 4 which is the lack of focus in higher education programs on qualitative research compared to quantitative research which has a mean of 3.65 and standard deviation of 1.06 and relative importance of 73% and ranked as the 3rd most important obstacle under this dimension. The 4th most important obstacle is item number 9 which is lack of orientation by the university to appoint quantitative research expertise which has a mean of 3.62 and standard deviation of 0.93 and relative importance of 72.4%. Followed by the item number 10 which is the lack of incentives to encourage the use of qualitative research and has a mean of 3.60 and standard deviation of 1.06 and relative importance of 72% and ranked as the 5th most important obstacle under this dimension.

The 6th most important obstacle is item number 8 which is the lack of expertise specialized in qualitative research which has a mean of 3.50 and standard deviation of 0.94 and relative importance of 70%. The 7th most important obstacle is the item number 3 which is the unavailability of qualitative data analysis software at the university and has a mean of 3.39 and standard deviation of 1.00 and relative importance of 67.8%. The 8th most important obstacle under this dimension is item number 1 which is the lack of Arabic references about qualitative research and has a mean of 3.27 and standard deviation of 1.06 and relative importance of 65.4%. The 9th most important obstacle under this dimension is item number 2 which is the lack of translated references to Arabic about qualitative research and has a mean of 3.26 and standard deviation of 1.06 and relative importance of 65.2%. The last obstacle is item number 7 which is inadmissibility of qualitative research for academic promotion has a mean of 3.22 and standard deviation of 1.05 and relative importance of 64.4%.

Regarding the mean of the aggregated dimension is 3.50 and a standard deviation of 0.75 and relative importance of 70%, which suggests that there are obstacles of using the qualitative approach in accounting research which are related to the management of Libyan universities. Table (7) presents descriptive statistics of items of the third dimension and the aggregated dimensions which represents the obstacles of using qualitative approach in accounting research, related to the nature of qualitative research from the perspective of accounting faculty members.

As shown in Table (7) most of the obstacles under this dimension scored about average except for the first and fifth items scored under the average. Generally, the results propose that there are obstacles perceived by accounting faculty members related to the nature of qualitative research. The most important item is the item number 7 which is the dominance of quantitative research in accounting literature which has a mean of 3.52 and standard deviation of 1.11 and relative importance of 70.4%. The second important obstacle related to the nature of qualitative research is item number 12 which is the difficulty in attending formal meetings of participants has a mean of 3.44 and standard deviation of 0.97 and relative importance of 68.8%. Followed by item number 11 which

is the difficulty in obtaining documents from participants which has a mean of 3.39 and standard deviation of 1.06 and relative importance of 67.8% and ranked as the 3rd most important obstacle under this dimension. The 4th most important obstacle is item number 9 which is the difficulty in getting accessibility to participants which has a mean of 3.37 and standard deviation of 1.01 and relative importance of 66.4%. Followed by the item number 10 which is the difficulty in making and recording interviews and has a mean of 3.32 and standard deviation of 1.01 and relative importance of 66.4% and ranked as the 5th most important obstacle under this dimension.

Table 7. Obstacles of Using Qualitative Approach in Accounting Research, Related to the Nature of Qualitative Research

No	Items	Mean	Std. Deviation	Relative Importance	Item rank
1	Small sample size used in qualitative research	2.85	1.03	57%	15
2	Inability to generalize results of qualitative research	3.08	0.97	61.6%	12
3	Difficulty of measuring reliability of qualitative research tools	3.06	0.99	61.2%	13
4	Difficulty of measuring validity of qualitative research tools	3.11	1.00	62.2%	11
5	Fear from the incident of unethical issues related to qualitative research	2.93	0.94	58.6%	14
6	Fear from the treatment of voluminous data generated from qualitative research	3.24	0.99	64.8%	8
7	Dominance of quantitative research in accounting literature	3.52	1.11	70.4%	1
8	Difficulty of publishing qualitative research in scientific journals	3.11	0.98	62.2%	10
9	Difficulty in getting accessibility to participants	3.37	0.98	67.4%	4
10	Difficulty in making and recording interviews	3.32	1.01	66.4%	5
11	Difficulty in obtaining documents from participants	3.39	1.06	67.8%	3
12	Difficulty in attending formal meetings of participants	3.44	0.97	68.8%	2
13	Difficulty of triangulation from different data sources	3.27	0.81	65.4%	7
14	Qualitative research requires considerable time and effort	3.31	0.94	66.2%	6
15	Sample is not representative of the population	3.21	0.98	64.2%	9
	Aggregated dimension	3.16	0.72	63.2%	-

The 6th most important obstacle is item number 14 which is qualitative research requires considerable time and effort which has a mean of 3.31 and standard deviation of 0.94 and relative importance of 66.2%. The 7th most important obstacle is the item number 13 which is the difficulty of triangulation from different data sources which has a mean of 3.27 and standard deviation of 0.81 and relative importance of 65.4%. The 8th most important obstacle under this dimension is item number 6 which is the fear from the treatment of voluminous data generated from qualitative research and has a mean of 3.24 and standard deviation of 0.99 and relative importance of 64.8%. The 9th most important obstacle under this dimension is item number 15 which is the sample is not representative of the population and has a mean of 3.21 and standard deviation of 0.98 and relative importance of 64.2%. The 10th most important obstacle is item number 8 which is the difficulty of publishing qualitative research in scientific journals has a mean of 3.11 and standard deviation of 0.98 and relative important of 62.2%.

The 11th most important obstacle is item number 4 which is the difficulty of measuring validity of qualitative research tools which has a mean of 3.11 and standard deviation of 1.00 and relative importance of 62.2%. The 12th most important obstacle is the item number 2 which is the inability to generalize results of qualitative research and has a mean of 3.08 and standard deviation of 0.97 and relative importance of 61.6%. The 13th most important obstacle under this dimension is item number 3 which is difficulty of measuring reliability of qualitative research tools and has a mean of 3.06 and standard deviation of 0.99 and relative importance of 61.2%. The 14th obstacle under this dimension is item number 5 which is the fear from the incident of unethical issues related to qualitative research and has a mean of 2.93 and standard deviation of 0.94 and relative importance of 58.6%, which is less than the average. The last obstacle is item number 1 which is the small sample size used in qualitative research has a mean of 2.85 and standard deviation of 1.03 and relative important of 57%. Finally, is the mean of the aggregated dimension which is 3.16 and a standard deviation of 0.72 and relative importance of 63.2%, which suggests that there are obstacles of using the qualitative approach in accounting research which are related to the nature of qualitative research.

Inferential Statistics

Inferential statistics was used in order to test the hypothesis and provide empirical evidence regarding the obstacles of using the qualitative approach in accounting research. The aggregated dimensions are considered the main variables of the study which represents the obstacles related to accounting faculty members, management of the university, and the nature of qualitative research. However, before determining the appropriate statistical test, normality test was performed in order to determine the suitable tests to test the hypothesis of the study.

Normality Test

Table (8) shows the results of the normality test in particular Kolmogorov-Smirnov^a test on the aggregated dimensions of the obstacles of using the qualitative approach in accounting research, related to accounting faculty members, obstacles of using the qualitative approach in accounting research, related to the management of Libyan

university, and the obstacles the qualitative approach in accounting research, related to the nature of qualitative research.

Table 8. Kolmogorov-Smirnov^a Test

Dimension number	Dimension title	t vale	p-value
1	obstacles of using qualitative approach in accounting research, related to accounting faculty members	.104	.099
2	Obstacles of using qualitative approach in accounting research, related to the management of Libyan universities	.224	.000
3	Obstacles of using qualitative approach in accounting research, related to the nature of qualitative research	.087	.200

Table (8) shows the results of the Kolmogorov-Smirnov^a test for all aggregated dimensions. The results for the first dimension has a t value of .104 and p-value of .099. The p-value of this dimension is more than the significance level of 0.05. Therefore, the first dimension follows the normal distribution and parametric test is used in particular One Sample T Test, to test the first hypothesis. However, the normality test results regarding the second dimension indicates t value .224 and p-value .200. The p-value of this dimension is less than the significance level of 0.05. Therefore, the second dimension does not follow the normal distribution and nonparametric test is used, in particular One Sample Wilcoxon Singed Rank Test to test the second hypothesis. Finally, the results for the third dimension has a t value of .087 and p-value of .200. The p-value of this dimension is more than the significance level of 0.05. Therefore, the third dimension follows the normal distribution and parametric test is used in particular One Sample T Test, to test the third hypothesis.

Hypotheses Testing

This section discusses the inferential statistics tests which are used to test the hypotheses of the study. The first hypothesis states that there are no obstacles to the use of the qualitative approach in accounting research related to accounting faculty members and is tested using One Sample T Test. The second hypothesis states that there are no obstacles to the use of the qualitative approach in accounting research related to the management of the university and is tested using One Sample Wilcoxon Singed Rank Test. The third hypothesis states that there are no obstacles to the use of the qualitative approach in accounting research related to the nature of qualitative research and is tested using One Sample T Test. Table (9) shows the results of One Sample T Test which is related to the first hypothesis.

Table 9. One Sample T Test for Testing the First Hypothesis

Particulars	t	df	p-value
Obstacles of using qualitative approach in accounting research, related to accounting faculty members	-7.091-	60	0.000

Table (9) shows the results of One Sample T Test which is related to the first hypothesis. The One Sample test was conducted using test value at 4 for the mean. The results indicated that the t value is -7.091- and the degree of freedom is 60 and the p-value is 0.000, which is less than the significance level of 0.05. Therefore, null hypothesis was rejected and the alternative hypothesis was accepted, which states that there are obstacles of using qualitative approach in accounting research, related to accounting faculty members in Libyan universities. Regarding the second hypothesis, Table (10) presents the results of the One Sample Wilcoxon Singed Rank Test which is related to the second hypothesis.

Table 10. One Sample Wilcoxon Singed Rank Test for Testing the Second Hypothesis

Particulars	W statistics	Z statistics	p-value
Obstacles of using qualitative approach in accounting research, related to the management of Libyan universities	1379.500	4.401	0.000

Table (10) shows the results of One Sample Wilcoxon Singed Rank Test which is related to the second hypothesis. The One Sample Wilcoxon Singed Rank Test was conducted using test value at 4 for the median. The results indicated that the Wilcoxon statistics is 1379.500 and z statistics is 4.401 and the p-value is 0.000, which is less than the significance level of 0.05. Therefore, null hypothesis was rejected and the alternative hypothesis was accepted, which states that there are obstacles of using qualitative approach in accounting research, related to the management of Libyan universities. Regarding the third hypothesis, Table (11) shows the results of One Sample T Test which is related to the third hypothesis.

Table 11. One Sample T Test for Testing the third Hypothesis

Particulars	t	df	p-value
Obstacles of using qualitative approach in accounting research, related to the nature of qualitative research	-9.081-	60	0.000

Table (11) shows the results of One Sample T Test which is related to the third hypothesis. The One Sample test was conducted using test value at 4 for the mean. The results indicated that the t value is -9.081- and the degree of freedom is 60 and the p-value is 0.000, which is less than the significance level of 0.05. Therefore, null hypothesis was rejected and the alternative hypothesis was accepted, which states that there are obstacles of using qualitative approach in accounting research, related to the nature of qualitative research.

Discussion, Conclusion, Limitations and Suggestions

Although there are many studies that have explored the obstacles of using qualitative research in different disciplines of social science, there is not agreement about the obstacles that face researchers to use qualitative research methodologies. As a result, there are plenty of research which explored the obstacles of qualitative research in social science in different countries. However, the majority of these studies were conducted in

different social science disciplines and accounting has received very little attention on this issue. Also, most of these studies considered the obstacles of using the qualitative approach, that are related to faculty members, the management of the universities and colleges, and the nature of qualitative research.

Consistent with previous studies (Al-Mousa, 2019; Al-Qahtani, 2020; Al-Zayde, 2019; Mohammed, 2020; Handayati and Alhaleh, 2021; Shareia, 2015), the current study confirmed and reinforced the results of former studies that the existence of obstacles to the use of the qualitative approach that are relevant to faculty members, the management, and the nature of qualitative research. In particular, the findings showed that the most import obstacles that face accounting faculty members to utilize the qualitative approach in accounting research is the management of Libyan universities such as the lack of conference, workshops and training of accounting faculty members about qualitative research as well as the lack of focus of higher education programs on qualitative research. Followed the obstacles which are related to accounting faculty members such as lack of qualitative research skills and change resistance to use the qualitative approach in accounting research. Finally, are the obstacles which are related to the nature of qualitative research such as the dominance of the quantitative approach in the accounting literature and the accessibly to organizations to collect different types of data.

The main objectives of this study were to investigate the obstacles of using the qualitative approach in accounting research, which are related to accounting faculty members, the management of Libyan universities, and the nature of qualitative research from the perspective of accounting faculty members of Libyan universities. The study found the significant obstacles which limit the use of the qualitative approach in accounting research are obstacles related to accounting faculty members such as skills and attitudes, obstacles related to the management of Libyan universities such as administrative and financial obstacles, and obstacles related to the nature of qualitative research including the challenges of the field study and the complexity of qualitative research.

However, there are several limitations associated with this study. First, is the small sample size as this study used only 60 questionnaires from accounting departments of Libyan universities for analysis, which could question the generalizability of the results. Second, the study was conducted based on quantitative research methods, though it advocates the use of qualitative research methodology. Finally, the study did investigate the difference of the respondents according to their academic rank or gender or the geographic location.

Therefore, several suggestions of future research could be made. First, future research could consider larger sample size from accounting departments of Libyan public universities to obtain more generalizable results. Second, future research could explore the obstacles of using the qualitative approach in accounting research using qualitative research methodologies in order to gain more in-depth understanding regarding the obstacles which face accounting research to rely on qualitative research. In addition to that, future research could investigate whether there are differences among respondents on their opinions with regards to the obstacles of using the qualitative approach in

accounting research due to their academic rank, gender, ethnicity, and geographic location.



The study contributes to the literature by identifying the most important obstacles of using the qualitative approach in accounting research from the perspective of accounting faculty members of Libyan universities. The findings provided clear statement on these obstacles so that practical suggestion can be proposed. First, the management of universities should pay more attention to qualitative research methodology by holding conferences, workshops, and training programs which target accounting faculty members and accounting students to enhance their knowledge and skills. Also, more weight could be given to accounting papers and research, which use the qualitative approach for the academic promotion of accounting faculty members so that accounting faculty members have a motive to produce accounting research which utilize the qualitative approach. Additionally, accounting higher education programs should be designed to include qualitative research methodologies so that accounting faculty members and accounting students gain the required knowledge and skills. Finally, accounting journals should increase their publication of accounting research that use the qualitative approach so that accounting researchers do not have the fear of not publishing their accounting research.

References

- Aedh, A., & Elfaki, K. N. (2019). Challenges confronting scientific research: a systematic review. *International Journal of Trend in Scientific Research and Development*, 3(4), 1–3.
- Aljazwi, A. S., Albarassi, H., & 'Alnass, A. (2019). Obstacles of scientific research in managerial and financial sciences: a field study on faculty members of Libyan higher education institutions. *The First Conference of the Faculty of Economics about the Scientific Research in Economic Sciences*, 273–296.
- Al-Mousa, I. A. (2019). Qualitative research obstacles in the fundamentals of education in the Saudi universities. *Journal of Scientific in Education*, 20, 293–335.
- Al-Qahtani, S. N. (2020). Obstacles to applying qualitative research in the educational field at King Saud University. *The Educational Journal*, 40(79), 2637–2676.
- Altewel, M. A., & Rashwan, M. A. (2019). Challenges and constraints of sustainability of scientific research and ways to develop it in the accounting departments in the Palestinian universities. *Journal of Economics and Business*. 77(5), 144 – 164.
- Al-Zayde, A. D. (2019). The obstacles of using the qualitative approach in educational administration and leadership research from the perspectives of staff members at Saudi universities. *International Interdisciplinary Journal of Education*. 8(4), 87 – 99.
- Anefro, A. H. (2022). Scientific research in economics (obstacles and solutions). *Journal of Alasmarya University: Sharia and Human Sciences*. 35(4), 416 – 427.
- Basri, H. (2014). Using qualitative research in accounting and management studies: not a new agenda. *Journal of US-China Public Administration*. 11(10), 831 – 838.

- Damayant, W. T. (2013). Who is afraid of qualitative research? A compromise accounting research failure in improving accounting practices. *International Journal of Advances in Management and Economics*. 2(2), 89 – 94.
- Elshikhi, S. A., & Elshikhi, S. N. (2020). Obstacles to Scientific Research at the University of Benghazi. *Almoktar Journal of Economic Sciences*. 7(13), 147 – 179.
- Gomear, S. J. (2020). The present situation of the Libyan accounting research from the perspective of faculty members in the accounting departments in economics faculties in the universities of Tripoli, Zawiya and Sabratha. *The Arabic Journal of Universities Education Quality Assurance*. 13(53), 31 -53.
- Gummeson, E. (2000). Qualitative methods in management research (2nd ed). USA: Sage Publication, Inc.
- Handayati, P. & Alhaleh, S. E. A. (2021). The challenges and prospect of qualitative research in accounting. *The 7th Regional Accounting Conference*, 264-269.
- Hatamleh, M. H. (2016). Obstacles of scientific research with faculty of university of Jadara from their point of view. *Journal of Education and Practice*. 7(33), 32 -47.
- Inanga, E. L., & Schneider, W. B. (2005). The failure of accounting research to improve accounting practice: a problem of theory and lack of communication. *Critical Perspectives on Accounting*. 16, 227 – 248.
- Mohamed, K. M., & Metwally, B. A. (2019). Qualitative/Quantitative Methodological Dilemma in Accounting Research: Whence and Whither? *Accounting Thoughts*. 23(3), 702 – 736.
- Mohammed, H. T. (2020). The obstacles of qualitative research in fundamentals of education field from perspective of faculty members of Egyptian universities and overcoming paths. *The Journal of Alfayoum University of Educational and Psychological Sciences*. 14(12), 121 – 186.
- Parker, D. L. (2012). Qualitative management accounting research: Assessing deliverables and relevance. *Critical Perspectives on Accounting*. 23, 54 – 70.
- Richardson, A. J. (2012). Paradigms, theory and management accounting practice: a comment on Parker (forthcoming) Qualitative management accounting research: assessing deliverables and relevance. *Critical Perspectives on Accounting*. 23, 83 – 88.
- Shareia, B. F. (2015). Qualitative case study research in accounting: challenges and prospects the Libyan case study. *International Journal of Economics and Management Engineering*. 9(12), 4185-4189.
- Wahyudi, I. (1999). Mainstream accounting and its paradigm: a critical analysis. *International Journal of Business*. 1(2), 99 – 112.

Zagoub, A. A., & Alnakkat, A. K. (2018). Accounting research trends in the Libyan specialized scientific journals. *Financial and Economic Research Journal*, 40(1), 1–40.

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Original Research

Navigating Turbulence: Crisis Communication of Airlines in the Philippines during the COVID-19 Pandemic

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Abstract

The recent coronavirus pandemic was a black swan event, and the airline industry was one of the most stricken. The crisis that airlines had to face during the pandemic was not just a health-related crisis but a consequential one within their own canceled flights, rebooking concerns, and a surge in refund requests they lacked the liquidity to address. Communication with stakeholders is even more crucial in times of distress. How airlines respond to the crisis shapes their reputation and future engagements. This study aims to discuss what the pandemic prompted in the Twitter communication of the three leading airlines in the Philippines, providing an insight into how they behaved before and during the pandemic, focusing on their message content and delivery strategy. Utilizing a descriptive-qualitative research design, the study thematically analyzes airlines' tweets and customer responses. The study contributes communication strategies that can help airlines instill confidence among passengers during and after a crisis, with an emphasis on instructing information, human connection, empathy, and responsiveness, and demonstrates how airlines can strategically optimize the microblogging platform in crisis communication and customer service support.

Keywords: Airline industry, COVID-19, Crisis communication, Twitter.

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Introduction

Background of the Study

The reality is that no organization is immune from a crisis, and its reputation is on the frontline every time. Crises are a significant threat to operations when not immediately and properly addressed, and how a company responds to these shapes public perception and influences engagement (Coombs, 2007).

Communication is central to the pursuit of crisis management, as this can either repair or damage reputation. How these are crafted is a turning point, and a good grasp of effective strategies would benefit an organization considerably. Crisis management literature supports the relevance of effective communication in handling crises (Khodarahmi, 2009). Given this, it is essential to have a robust communication system and a crisis communication plan informed by evidence-based research.

A recent crisis is the coronavirus pandemic. In December 2019, China reported cases of pneumonia in Wuhan, later identified as a novel coronavirus. It was publicly announced by the World Health Organization in January 2020. They disseminated information on detecting and managing potential cases following what they knew at the time and based on their experience with previous respiratory viruses. The same month, Thailand confirmed a case of COVID-19 in their locale. This informed concerned teams of a possible wider outbreak and led to the series of events following the declaration of the virus as a Public Health Emergency of International Concern (PHEIC). As more cases were confirmed outside China around March 2020, the novel coronavirus was declared a global pandemic. (Archived: WHO Timeline- COVID-19, 2020)

The United Nations Development Programme refers to the coronavirus pandemic as far more than a health crisis (COVID-19 pandemic, n.d.). The preventive and control measures observed have shifted societal flow and changed the landscape. Global economic impacts include transport disruption, trade restrictions, and work suspension (Shang, Li, & Zhang, 2021). Companies that are not quick to adapt will likely struggle (Pantano, Pizzi, Scarpi, & Dennis, 2020). Organizations are advised to consider objective reevaluation to account for the changes brought about by the crisis and to integrate digital communications, given their exponential relevance during the pandemic (He & Harris, 2020).

Suffice it to say that all shared the adversity, but the airline industry was one of the most affected. Travel facilitates the spread of the virus (Yu, Li, Yu, He, & Zhou, 2021), and authorities immediately mandated restrictions. In compliance, airlines had to cancel flights, resulting in a \$168 billion loss in revenue within the same year coronavirus was declared a pandemic alone (Bouwer, Krishnan, Saxon, & Tufft, 2022).

In the Philippines, a flag-carrier airline filed for bankruptcy while others sought government assistance, i.e., waiver of airport charges and credit guarantees (Ocampo, 2020). The Civil Aeronautics Board reported that air travel complaints surged by 278% — 91% concerning refunds (Mercurio, 2021). Airlines sought an astounding increase in

payables, which they lacked the resources to address with the decline in passenger demand and consequent loss of revenue. Airlines had to plead for consumers' patience and understanding. The crisis that airlines had to face during the coronavirus pandemic was not just a health crisis but a consequent one within their own. Recent headlines show that airlines in the Philippines are still in turmoil with the issues they have encountered during the pandemic, to the point of the Senate discussing a franchise suspension over insurmountable complaints (Adel, 2023).

Crisis management must be done swiftly to prevent escalating issues and harmful speculations (Khodarahmi, 2009). Here, social media introduces itself as a promising avenue, particularly Twitter, a platform that offers instantaneous and real-time information exchange. Taking into the context of a crisis where there is an overbearing weight of instability and uncertainty surfaces the need for immediate response.

This paper discusses what the pandemic prompted in the Twitter communication of the three leading airlines in the Philippines. This study explores the platform as a potential medium for crisis communication, providing a glimpse into what can be articulated with only 280 characters during turbulent times. This paper provides insight into how they behaved before and during the pandemic, focusing on their message content and strategies. It advances the propositions of Situational Crisis Communication Theory. Lastly, this study concludes with recommendations for airline crisis communication drawn from open-ended customer perspectives and insight.

Statement of the Problem

Communication with stakeholders is even more crucial in times of distress. They need to know what is being done to protect them and how they, too, can protect themselves from the threat of the crisis. Dissemination of helpful information and expressions of sympathy and concern can alleviate psychological threats and stress. Knowing how to communicate is as important as what to communicate. Informed strategies exhibit competence and put an organization at an advantage.

Organizations are bent on maintaining a good reputation. It is a valuable organizational asset where the degree of stakeholder involvement is dependent. It also has implications for financial performance. Literature on the relationship between the two variables provides consistent and validated positive results (Gatzert, 2015).

The global pandemic has had a cascading effect to the point of creating a new normal for everyone, and as the landscape changes, so does how we communicate. Message strategies reflect economic conditions (Lee, Taylor, & Chung, 2011). Consequently, there exists an imperative to craft messages opportune to the social situation.

The findings from this study would inform organizational strategies that can be applied in image restoration and reputation management in crises with a similar scope and magnitude as the coronavirus pandemic. It would also contribute to crisis communication literature, particularly on airlines amidst COVID-19.

Research Questions

This study examines Philippine airline companies' Twitter crisis communication, focusing on their response strategies and how customers reacted. It aims to answer the following questions:

1. What were the communication strategies of airlines prior to the pandemic?
2. What were the market/ consumer sentiments prior to the pandemic?
3. What were the communication strategies of airlines during the pandemic? Were these consistent with SCCT recommendations?
4. What were the market/ consumer sentiments during the pandemic?
5. Are there differences in airlines' communication strategies prior to and during the pandemic?
6. Are there differences in the market/ consumers' sentiments prior to and during the pandemic?

Brief Literature Review

Crisis Communication

Crises are non-routine events that involve social disruption and physical harm (Kreps, 1984), characterized by high levels of uncertainty, a severe threat to goals and values, and a restricted time for a response (Seeger, Sellnow, & Ulmer, 2003).

In a crisis, communication is recognized as a key emergency response activity and crucial, as poor communication can worsen the situation (Seeger & Griffin-Padgett, 2010). Crisis communication focuses on responses or what organizations say and do after a crisis (Coombs & Holladay, 2010). Research on the concept is rather vast, considering it has three stages: pre-crisis, crisis communication, and post-crisis, which respectively translates to preventing crises, responding to crises, and gaining knowledge from past crises (Coombs, 2014). Pre-crisis interventions include identifying potential threats, reducing the likelihood of them occurring, and preparing responses in the event they occur. Crisis communication is the actual use of crisis response strategies to influence evaluators' crisis perceptions. Post-crisis communication concerns organizational learning and social evaluations, e.g., reputation and trust assessment. Previous research on the subject supports that these evaluations are influenced by response strategies (Bundy, Pfarrer, & Coombs, 2016).

A comprehensive examination of the literature supports crisis response as the most researched aspect of crisis communication (Coombs & Holladay, 2010). It explored image restoration and ideas from rhetorical criticism (Benoit, 1995). It also advanced an evidence-based framework that offers practical implications for public relations practitioners (Coombs, 1999), which extended to become the notable Situational Crisis Communication Theory.

Widely applied typologies are from Benoit and Coombs. While the former is the widely-applied typology (Seeger & Griffin-Padgett, 2010), it has been argued to be speculative and limited to case studies (Coombs, 2007).

Renewal is an intentional divergence from image restoration. It concerns how the organization can move forward from the crisis (Ulmer, Seeger, & Sellnow, 2006). The same proponent developed the Discourse of Renewal, recognized as the most optimistic crisis communication theory (Marsen, 2019).

This paper discusses what the pandemic prompted in the Twitter communication of the three leading airlines in the Philippines, focusing on their message content and strategies. Given that it is concerned with communication strategies, a more fitting school of thought for this study is image restoration. It is important to mention that while the coronavirus pandemic is considered an unexpected event that is entirely outside organizational control and is more fitting for a renewal narrative, what the airlines had to face during the pandemic was not just a health crisis but a consequent one within their own. In compliance with control measures, travel was restricted, and flights were canceled. Airlines had to deal with a surge in refund requests, and with the decline in passenger demand, they lacked the liquidity to make immediate refunds, resulting in more reproach.

Aviation Crises, Response Strategies, and Communication Practices

Previous research on airlines' crisis communications studies plane crashes, power outages, and the infamous 9/11 attacks. Analysis of a press release from Air Asia following a plane crash incident in December 2014 discusses the impact of crisis communication using three rhetorical appeals (Adi & Kartikawangi, 2016) and another demonstrates the integrated use of accommodative and defensive strategies in preventing escalation of a crisis (Ngai & Jin, 2016). A comparison of two major airline crashes in Japan and the United States endorses cultural sensitivity in developing an effective crisis communication plan (Haruta & Hallahan, 2003). A case study of Southwest Airlines' crisis communication strategy during the 15-hour power outage in July 2016 strengthens the case for adopting multiple social channels during crises and readiness to respond swiftly on social media, especially to negative comments or posts (Boamah, 2019).

The September 11 attacks modified security measures for the airline industry. A study of the United Airlines and American Airlines crisis communication presented that both provided instructing information through facts, how the public should act, how the problem is being corrected, and adjusting information through messages of condolences and links to relief organizations (Greer & Moreland, 2003).

A paper relevant to this study examines how four European airlines communicated to their stakeholders during the coronavirus pandemic, analyzing respective web pages, newsletters, and press releases. Findings present the main topics addressed, which included rebuilding and bolstering, e.g., travel safety and new and adjusted services (Nittman, 2021).

Research Gap

This paper explores the crisis communication of airlines in the Philippines during the coronavirus pandemic. This study contributes to crisis communication research and public health crises—an area yet to be explored, as well as corporate communication during global crises (Nittman, 2021).

Studies on the coronavirus pandemic and local airlines are limited to the effects of the health crisis on airline practitioners and customers. A survey on the effects of the pandemic on practitioners reveals that it has affected airlines' products and services, financial status, and stakeholder relations (Bautista, Canasa, Laurente, & Ashipaoloye, 2022)). An assessment of passengers' intent to return to air travel reveals that this correlates with health protocols and that local passengers perceive these measures as far from being exceptionally implemented (Montalbo, 2022).

Airlines in the locale are still in turmoil with the issues they have since encountered. Recently, the Senate discussed possible franchise suspension due to insurmountable complaints (Abarca, 2023). In September 2023, the Civil Aviation Authority of the Philippines conducted a Media Crisis Management and Communications training where participants from the sector were taught the basics of crisis communication and how it can be managed on social media (Cabayan, 2023). They emphasized the importance of concise and immediate communication during a crisis. From an Emergency Broadcast Training organized by government media outlets and disaster response agencies, the need for the Philippines to improve disaster response communication activities was mentioned (Sevillano, 2022). This study aims to provide recommendations for improvement in crisis communication practices within the local industry and explores Twitter as a potential medium.

Most studies on airline crisis communication analyzed press releases and news articles. However, this form of narrative disclosure is formalistic and undergoes screening and revisions before publication. What a crisis entails are real-time updates, an aspect that is not squarely apparent in press releases. This paper explores Twitter as a potential medium for crisis communication, providing a glimpse into what can be articulated with only 280 characters during turbulent times.

This study also contributes to the literature on Situational Crisis Communication Theory. Further research is required for greater confidence in the framework (Coombs, 2007). This study employs the theory in the context of the coronavirus pandemic, and findings would apply to other victim crises.

Theoretical Framework

Situational Crisis Communication Theory

Situational Crisis Communication Theory (SCCT) is an evidence-based framework that explains the dynamics of post-crisis communication and reputational protection and offers practical insights derived from experimental research.

Determining initial crisis responsibility and identifying the crisis type is the first step in SCCT (Coombs, 2007). SCCT crisis clusters are victim, accidental, and intentional clusters. These are identified according to salient cues in crisis frames and reflect crisis responsibility and reputational damage.

Victim crises are natural disasters, workplace violence, product tampering, and rumors with weak attribution of crisis responsibility, and the organization is perceived as a victim. Accidental crises are unintentional or uncontrollable events, and there is only minimal attribution of crisis responsibility toward the organization, e.g., technical-error accidents and technical-error product harm. Intentional crises are purposeful events with firm attribution of crisis responsibility, e.g., human-error accidents, human-error product harm, and organizational misdeeds.

In this study, the coronavirus pandemic is identified as a victim crisis. First, there is a weak attribution of crisis responsibility toward airline companies, and second, airline companies are likewise considered a victim of the crisis.

Primary crisis response strategies are denial, diminish, and rebuilding (Coombs, 2007). Denial strategies intend to liberate the organization from being responsible for the crisis. Diminish strategies portray the crisis as manageable and that the organization is in control. To effectively deliver solid evidence supporting claims is imperative. Rebuilding strategies aid victims, improve organizational reputation or generate new reputational assets. Secondary crisis response strategies are bolstering strategies. These are further elaborated in Table 1.

Table 1. SCCT Crisis Response Strategies (Coombs, 2007)

Primary response strategies	
<i>Deny crisis response strategies</i>	
Attack the accuser	The crisis manager confronts the person or group, claiming something is wrong with the organization.
Denial	The crisis manager asserts that there is no crisis.
Scapegoat	A crisis manager blames some person/group outside of the organization for the crisis.
<i>Diminish crisis response strategies</i>	
Excuse	A crisis manager minimizes organizational responsibility by denying intent to harm or claiming an inability to control the events that triggered the crisis.
Justification	A crisis manager minimizes the perceived damage caused by the crisis.
<i>Rebuild crisis response strategies</i>	
Compensation	Crisis manager offers money or other gifts to victims.

Apology	A crisis manager indicates that the organization takes full responsibility for the crisis and asks stakeholders for forgiveness.
Secondary crisis response strategies	
<i>Bolstering crisis response strategies</i>	
Reminder	Tell stakeholders about the past good works of the organization.
Ingratiation	The crisis manager praises stakeholders and reminds them of past good works by the organization.
Victimage	Crisis managers remind stakeholders that the organization is also a victim of the crisis.

SCCT recommends instructing information alone or a deny response strategy under the victim cluster, diminish under the accident cluster, and an apology in the intentional cluster. Ethically, the priority in any crisis is to protect stakeholders from harm before the organizational reputation (Coombs, 2007). Releasing general information about safety measures is recommended before selecting a crisis response strategy.

The more research tests the theory, the more confidence organizations can gain with its application. SCCT is the most widely applied crisis communication theory (Macnamara, 2021), and extant literature supports it as a valid and reliable framework for predicting stakeholder perceptions and communicating appropriate responses (Effiong, 2014).

Conceptual Framework

Collated data were thematically analyzed following Braun and Clarke's thematic analysis. This study employs an inductive analysis of the semantic themes of the corpora.

The tweets were analyzed for communication strategies prior to and during the pandemic, answering research questions 1 and 3, respectively. These were then compared for emerging differences in the attempt to address research question 5 and the first hypothesis. Consumer responses and sentiments for both phases were also analyzed, answering research questions 2 and 4. A comparative analysis addresses research question 6 and the second hypothesis. This is illustrated in Figure 1.

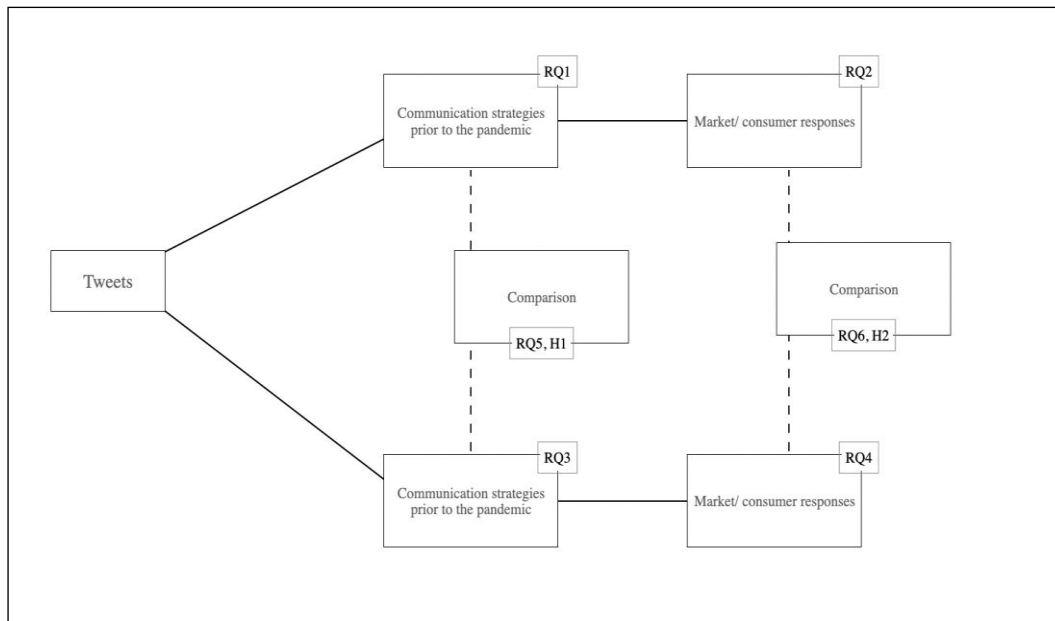


Figure 1. Conceptual Framework

Hypotheses

A crisis causes instability and uncertainty, which creates a need for information (Coombs, 2007). He added that this uncertainty produces stress for stakeholders and that expressions of sympathy and concern help alleviate this. An informed crisis communication plan can address these concerns, and an effective one proves productive for the audience and the organization that disseminated them. How these are crafted is a turning point for organizations. These reflect their values, show their priorities, and influence how they are publicly received or shape their reputation. The degree of stakeholder involvement is dependent on this aggregate evaluation. The literature review supports that organizations craft messages opportune to the social situation. Given the mentioned motivations, it can be hypothesized that:

H₁: There is a difference in the communication strategies of the Philippine airline industry on Twitter before and during the COVID-19 pandemic.

Coombs also asserted that communication affects stakeholders' perceptions in a crisis, which provides for the second hypothesis:

H₂: There is a difference in the market's responses to the communication strategies of the Philippine airline industry on Twitter before and during the pandemic.

Methodology

A descriptive-qualitative approach was used to conduct the research. The corpus of the study is a collection of tweets and replies from the official Twitter accounts of the leading airline companies in the Philippines in two phases: prior to the pandemic (November 2019- January 2020) and during the pandemic (February- May 2020). The timeframe follows news headlines in the country. These companies are Cebu Pacific, Philippine Airlines, and Air Asia Philippines.

Cebu Pacific is famous for their games that provide entertainment to passengers on board. Philippine Airlines is a flag-carrier airline with a significant role in boosting the tourism industry and stimulating economic growth. Their promotions are not limited to offered products and services but also include local travel destinations. Air Asia Philippines is a subsidiary of the Air Asia group, hailed as the world's best low-cost carrier.

A total of 1129 tweets were collated—218 tweets and 159 replies prior to the pandemic and 211 tweets and 541 replies during the pandemic. The replies were gathered through a systematized random sampling, selecting one after every five. Notedly, only replies to main tweets were considered, and for every main tweet, there were five replies. It is important to note that not every main tweet could be collected with five replies due to the limited data.

The corpus was thematically analyzed following Braun and Clarke's thematic analysis phases. Their analysis deliberated the following decisions: inductive or theoretical thematic analysis, semantic or latent themes, and realist or constructionist thematic analysis (Braun & Clarke, 2006). The researcher decided with an inductive analysis of semantic, realist themes. This means that the analysis is data-driven, and the themes coded are explicit data, allowing investigation for motivation and experiences. The tweets were then coded following this and sorted to form an overarching idea. The coding process was not linear and demanded a constant review of initial codes. Finally, these were named and defined.

The replies were analyzed for sentiments and themes. The development of sentiment analysis concurs with the proliferation of social media and user-generated content (Zhang & Liu, 2016). This is useful in feedback research, which helps companies improve their products and services and their relationship with customers and other external stakeholders (Cambria, Schuller, Xia, & Havasi, 2013). This study performs sentiment analysis manually and according to polarity, allowing comparative analysis. Five degrees of intensity are assigned— positive, slightly positive, neutral, slightly negative, and negative. This is to capture the nuance and multifaced characteristics of human emotion. Like thematic analysis, the process demanded a constant review of coded data according to context and intensity.

Both analyses, which required coding, are performed by a single coder. This is one of the weaknesses of this study. Qualitative research often requires at least two coders to enhance the credibility of findings. However, the researcher ensures careful attention to the data and validates codes through a constant review. Given that this is descriptive-

qualitative research, no variables are manipulated, and a position of neutrality is maintained.

Findings

Airlines' communication strategies prior to the pandemic

Following an inductive thematic analysis, the researcher recognized three overarching semantic themes: informing, promoting the organization, and appealing to the audience's emotions.

Informing is an act of conveying relevant details and important knowledge to a group of individuals. The emergence of informing tweets suggests that airlines are concerned with passengers' convenience, as informing them of changes and providing relevant information helps them avoid unnecessary troubles later. Informing has two sub-themes: advisory and announcements. Advisories provide status updates following live events such as typhoons and lightning warnings. These also provide guidance and recommendations on how the public or their customers should act about specific situations. Advisories are often tweeted in threads for a more coherent presentation and to include as much relevant information as possible, given the platform's character limit. Conversely, announcements provide status updates but do not necessarily follow up a call to action. These are often flying reminders and lists of canceled flights.

Organizational promotion serves to attract new customers and retain existing ones. This is achieved by employing strategies and tactics that can situate an organization in a favorable light. There are four sub-themes under organizational promotion: conscientiousness, compensation, promotion, and gimmicks. Conscientiousness projects quality service, instilling confidence in existing and new customers. It shows how responsible and reliable an organization is and how it is worthy of customers' loyalty and trust. It is important to mention that this is only evident within the Cebu Pacific data set, the same with compensation. Compensations in this context often follow inconveniences beyond the airlines' control, i.e., typhoons and phreatic eruptions. Airlines are not necessarily obliged to make recompenses for such. For this reason, it appears as a gesture of goodwill, projecting a positive image of the organization.

Promotions here focus on offered products and services. These are designed to attract an audience, increase sales, and enhance organizational image. Gimmicks are attention-grabbing tactics and are promotional by nature. These have entertainment value and invite the audience to participate, e.g., by sharing travel photos, dream destinations, and personal experiences with the airlines. This engagement, in turn, creates more exposure for the organization.

Creating an emotional connection with customers fosters loyalty and retention. Appeal to the audience's emotions gives a human character to these airlines, making them more relatable and deserving of customers' understanding and patience. Extending warm wishes for holidays and local festivals displays festive spirit. These create a seasonal demand for air travel, so airlines promote such events. Airlines resort to appeals for patience and understanding after announcing a disruptive and inconvenient situation to

ask for passengers' empathy during such troubling times. These are often followed by airlines' plans for resolution. Expressions of gratitude convey appreciation for customers' support and patience.

Passengers' sentiments prior to the pandemic

Replies were analyzed for sentiments according to polarity (positive, slightly positive, neutral, slightly negative, negative). Positive replies generally consisted of positive sentiments and expressions of appreciation and gratitude towards the airlines. Slightly positive tweets expressed understanding of the situation and the necessary flight cancellations. Neutral-sentiment replies were mostly inquiries, clarifications, requests for seat sales, assistance, and responses to direct messages. There were also suggestions, i.e., preferred celebrity endorsers and participatory responses to gimmicks.

Slightly negative replies were complaints about airlines' unresponsiveness and lack of information, technical problems, i.e., system glitches, poor customer service, and complaints about automated agents. Negative-sentiment replies consisted of expressions of frustration and complaints. Comparatively, the language is stronger here, and there is a persistent use of the exclamation point.

Airline communication strategies during the pandemic

Analysis of the dataset from February to May 2020 presented two new overarching themes: public welfare and organizational identity. Public welfare concerns passengers' health and safety, providing peace of mind and instilling confidence in air travel. It is an emerging theme during the pandemic and an indispensable attribute. Government agencies and regulatory bodies emphasize public safety amid the current crisis. As with any organization, they expect airlines to employ proactive measures to achieve the common goal of managing the risk of infection and flattening the curve. This is achieved by changing operations to adapt and ensuring preventative measures are observed. There are four sub-themes under public welfare: advisories, announcements, changes in operations, and compensations. Changes in operations are safety precautions and preventative measures, conveying a sense of security and assurance of safer travel. This is an emerging theme during the pandemic. Airlines were expected to adapt their operations to manage the risk of infection.

Organizational identity highlights character and values and reflects organizational culture, influencing how internal and external stakeholders perceive the organization. Both organizational identity and organizational promotion situate an organization in a favorable light. Only that the latter takes a less aggressive promotional tone and is well-suited to the situation.

Organizational identity sub-themes are conscientiousness, promotions, and collaborations. Explicit promotions still emerged during the pandemic. What was particular to the pandemic were promotions of products and services that offered flexibility to passengers, such as unlimited rebooking and travel funds. Collaborations intend to enhance credibility and foster trustworthiness. This is an emerging theme during the pandemic. It also shares the responsibility with other regulatory bodies following

announcements and advisories, projecting that decisions result from careful deliberation with experts.

Appeal to the audience's emotions still emerges, which consisted of appeals for patience and understanding, apologies, and expression of gratitude. Apology is an emerging theme. These are expressions of regret made by airlines following a disruptive event that may cause inconvenience to passengers. Excerpts for each sub-theme are presented in Table 2.

Table 2. Themes, sub-themes, and excerpts

Theme, sub-themes	Airline	Excerpts
Informing, Advisories	Cebu Pacific (January 12, 2020)	"#CebuPacificAdvisory. Taal Volcano eruption. As of 630pm, January 12, 2020. Airport authorities have requested airlines to hold flights to and from Manila as ash caused by the phreatic eruption of Taal Volcano falls over the Ninoy Aquino International Airport."
Informing, Announcements	Cebu Pacific (December 20, 2019)	"Cebu Pacific and Cebgo remind all passengers to allot ample time to get to the airport and go through security inspection, immigration screening, check-in, bag drop, and other pre-departure requirements. To read the full text of the peak season reminder, please see https://bit.ly... "
Organizational promotion, Conscientiousness	Cebu Pacific (December 14, 2020)	"We are working with the authorities to try to resolve the situation as soon as possible and minimize inconvenience to all our passengers."
Organizational promotion, Compensation	Cebu Pacific (December 23, 2020)	"Passengers booked on these canceled flights may avail of the following options: Rebook flights within 30 days without penalties, Refund tickets in full Store value of the ticket in a Travel Fund for future use."
Organizational promotion, Promotion	Air Asia (January 19, 2020)	"The long-standing best low-cost carrier worldwide has gotten all aspects down pat when it comes to giving a great sky experience—from hassle-free check-in, cheap airfare, and flight connectivity to good food catering. - Manila Bulletin https://lifestyle.mb.... "

Theme, sub-themes	Airline	Excerpts
Organizational Promotion, Gimmicks	Cebu Pacific (December 26, 2020)	"Celebrate your year of travels with these #CEBTravels stickers! Log in at http://mycebtravels.com , take a screenshot of your stickers, and reply to this tweet with your screenshot!"
Appeal to the audience's emotions, Festive spirit	Philippine Airlines	"What is a better way to celebrate this day of cheer and togetherness than spending it with your loved ones? Merry Christmas from the #HeartOfTheFilipino, #TravelPAL!"
Public welfare, Advisories	Cebu Pacific (February 2, 2020)	"Cebu Pacific Advisory February 2, 2020 (8:00 PM) In support of the PH government's efforts to manage the risks of the Novel Coronavirus (NCoV) virus, Cebu Pacific will cancel flights between the Philippines, Hong Kong, and Macau effective immediately, until February 29, 2020."
Public welfare, Announcements	Air Asia (March 16, 2020)	"AirAsia is opening an emergency help desk in Manila to assist guests whose travel plans are affected by a disrupted service following the Covid-19 outbreak. Click the link below for full information. http://newsroom.airasia... "
Public welfare, Changes in operations	Air Asia (May 2, 2020)	"This modified customer journey is rooted in our mission to provide you with a reassuring travel experience, following the highest health and safety standards. Here is what you can expect from us to ensure you enjoy a healthy, safe, and clean environment when we fly again."
Public welfare, Compensation	Air Asia (March 15, 2020)	"[Travel Advisory: March 15, 2020] AirAsia is set to mount special recovery services from Puerto Princesa to Clark and Cebu for passengers affected by the government's recent restrictions on travel due to the current public health situation."
Organizational identity, Conscientiousness	Philippines Airlines (April 8, 2020)	"Rest assured that we are doing our best to respond to your messages in a timely manner."

Theme, sub-themes	Airline	Excerpts
Organizational identity, Promotion	Cebu Pacific (March 3, 2020)	“Book your PISO seats NOW! Grab P1 flights and plan for trips ahead with no worries when you add CEB Flexi upon initial booking. Rebook for free up to 2x and pay only for the fare difference. http://bit.ly... ”
Organizational Identity, Collaboration	Air Asia (February 14, 2020)	"AirAsia is glad to cooperate with the Philippine government following its recent decision to relax travel restrictions. From the Philippines, AirAsia flies to Taipei and Kaohsiung. Click the link for more information: https://air.asia... ”
Appeal to the audience's emotions, Apologies	Cebu Pacific (March 13, 2020)	“As we experience higher volume of calls and messages at this time, we ask for patience from our passengers. We are exerting all effort to assist all our affected passengers as we can.”
Appeal to the audience's emotions, Appeal for patience and understanding & Expressions of gratitude	Philippine Airlines (March 15, 2020)	“We sincerely apologize for the inconvenience and thank you for your kind cooperation during this very challenging time.”

The strength of the thematic analysis is that it can offer a richer interpretation of data. However, the SCCT framework also has advantages as it provides practical insights from experimental research. Instructing information as the most frequent strategy is consistent with SCCT recommendations, denoting successful crisis management. This was followed by compensation, justification, and reminder. Ingratiation, adjusting information, apology, and victimage are among the least employed. It is important to mention that relative to other studies, this paper considers instructing and adjusting information separately, with the former concerned with coping with the crisis physically and the latter psychologically. All three deny response strategies were not evident in the data. Table 3 presents respective coding frequencies and excerpts.

Table 3. Crisis response strategies, coding frequencies, and excerpts

Crisis response strategy	Coding frequency (n=231)	Excerpts	Airline
Instructing information	68%	"[Updated February 6, 2020] AirAsia wishes to inform its guests that it has implemented a mandatory temperature screening of all passengers prior to boarding any domestic and international flight."	Cebu Pacific (March 6, 2020)
Compensation	12%	"Meanwhile, passengers who book flights until April 30, 2020 (regardless of travel date and route) will get to avail of CEB Flexi for FREE. CEB Flexi allows passengers to rebook their flights up to two times. Simply select the "CEB Flexi" add-on during booking. #COVID19"	Cebu Pacific (March 13, 2020)
Justification	9%	"AirAsia is canceling selected flights between the Philippines and China until March 1, 2020, considering the current health situation."	Air Asia Philippines (February 1, 2020)
Reminder	4%	"Cebu Pacific has always been committed to upholding the safety of all our passengers and personnel."	Cebu Pacific (March 10, 2020)
Ingratiation	2%	"Our sincerest appreciation for your continued support and patience."	Air Asia Philippines (March 19, 2020)
Adjusting information	2%	"When the skies open up once again, travel with peace of mind with our enhanced measures and procedures that we've put in place for every Juan's safety. Let's all work together, so #EveryJuanWillFlyAgain!"	Cebu Pacific (May 23, 2020)
Apology	1%	"We sincerely apologize for the inconvenience..."	Philippine Airlines (March 15, 2020)
Victimage	1%	"Cebu Pacific flights continue to operate as scheduled; however, we have received rebooking and cancellation requests from our passengers in light of COVID-19."	Cebu Pacific (March 12, 2020)

Passengers' sentiments during the pandemic

Positive replies during the pandemic likewise consisted of positive sentiments and expressions of appreciation and gratitude towards the airlines, and slightly positive tweets expressed empathy considering the situation. Neutral-sentiment replies were mostly inquiries, requests for repatriation or sweeper flights, requests for assistance, and responses to direct messages sent.

Slightly negative replies point out poor decisions taken by the airlines while providing suggestions for improvement. Some have even shared personal narratives on how they are being affected by airlines' actions. Here also, airline practices are compared to those of other airlines, and government agencies are mentioned in the attempt to raise a complaint. Complaints here are about charged fees on rebooking and delayed refunds.

While negative sentiment replies also consisted of complaints, the language is stronger here, and there is a persistent use of the exclamation point. Aside from expressions of frustration, there were also accusations of fraud.

What the coronavirus pandemic prompted in airlines' communication

This section addresses research question no. 5 and the first hypothesis of the study, concerning whether differences emerge in the Twitter communication of the three airlines in comparing employed strategies prior to and during the pandemic. This study supports the first hypothesis.

What the coronavirus pandemic prompted in airlines' communication is the inculcation of confidence among passengers. Organizational promotion prior to the pandemic turned into organizational identity during the pandemic, taking a less aggressive promotional tone.

Promotions prior to and during the pandemic differed. For the latter, products advertised offered flexibility—a conducive attribute considering the uncertainty of times, and the word itself is mentioned in the tweets. Compensations prior to the pandemic were merely law-mandated recompenses. During the pandemic, special and repatriation flights were offered. The former is delivered in a manner that enhances the corporate image, the latter in a way seemingly concerned with passengers' welfare. Conscientiousness during the pandemic emphasizes safety and public welfare, which are indispensable factors.

Sub-themes that were present prior to the pandemic that did not emerge during the pandemic are gimmicks and simulations of festive spirit. This suggests that the airlines are not tone-deaf to the situation and realize which content does and does not resonate well with the audience at such a time.

Passengers' sentiments prior to and during the pandemic

This section addresses research question no. 6 and the second hypothesis on whether differences emerge in passengers' sentiments or reactions to the communication strategies employed by the three airlines prior to and during the pandemic. Findings support the second hypothesis.

Prior to the pandemic, the neutral tone was the most frequent coded sentiment for the three airlines. During the pandemic, neutral and slightly negative sentiments have the same occurrences for Cebu Pacific and Philippine Airlines, while slightly negative sentiments have the most frequency for Air Asia Philippines. This is illustrated in Figure 2.



Figure 2. Sentiment Analysis

Positive and slightly positive replies have similar themes for both phases and negative replies. Positive replies generally consisted of expressions of appreciation and gratitude towards the airlines. Slightly positive tweets expressed understanding of the situation. Negative-sentiment replies consisted of complaints, but the language during the pandemic is stronger, and there is a persistent use of the exclamation point. Aside from expressions of frustration, there were also accusations of fraud.

Neutral sentiments shifted from requests for seat sales to requests for repatriation/sweeper flights. Slightly negative sentiments prior to the pandemic were complaints mostly about technical difficulties; during the pandemic, complaints were on refund requests and rebooking fees. These reveal a change in priorities during the health crisis, and the significant number of neutral and slightly negative sentiments suggest that passengers' needs were yet to be addressed or were long overdue. This reflects the airlines' performance and passengers' satisfaction with it.

In this study, the replies do not appear to be directly in response to the message content of the tweet. The reply section of the three airlines became an avenue for passengers to unload their frustrations due to canceled flights and delayed refunds. While it may not provide valuable information about audience reactions towards message content and strategy, passenger outlook can be gathered from the replies, which can impart airline companies with recommendations for improvement.

Twitter as a viable customer service platform

One of the most recurring complaints was airlines' lack of information and unresponsiveness. Tweets with just attached links were received poorly. This suggests that the airline does not see Twitter as a platform for communicating with customers or instead sees it as supplementary to its other social media accounts. The fact that users are complaining about the seeming lack of information implies they rely on the platform for announcements and updates. A passive response to a crisis reflects the untapped potential of social media and could also lead to negative consequences for the business, such as weakened interactivity and lessened opportunities for public insight (Kim, Chon, & Miller, 2014).

Being responsive is imperative during crises

Being responsive shows how valuable customer satisfaction is for organizations and may foster loyalty and long-term engagement. Additionally, promptly attending to queries and concerns can benefit a business as it can contribute to developing relevant and up-to-date decisions. There are resources in question in these situations: financial and time. The lack of information only alleviates customers' anxiety and stress.

Human connection over automated services during crises

There were technical difficulties and complaints, such as problems with the website and system glitches. Problems with website usability are linked to negative sentiments (Misopoulos, Mitic, Kapoulas, & Karapiperis, 2014). During times of crisis, when people are anxious and frustrated, bots are not preferred. People need human connection. The importance of incorporating empathy is emphasized in crisis responses (Slagle, Chatham-Carpenter, McIntyre, & Reed, 2021), an ability that bots have not yet perfected to convey. It may be economical for some organizations, but sometimes it sacrifices customer satisfaction.

Conclusions and Recommendations

This study discusses what the pandemic prompted in the Twitter communication of the three leading airlines in the Philippines, providing insight into how they behaved before and during the pandemic with a focus on their message content and strategies. It concludes with recommendations for airline crisis communication drawn from open-ended customer perspectives and insight.

Following an inductive thematic analysis, the researcher recognized three overarching semantic themes in airlines' Twitter communication before the pandemic: informing, promoting the organization, and appealing to the audience's emotions. During the pandemic, emerging themes were public welfare and organizational identity. Appeal to the audience's emotions still materializes. Responses are consistent with SCCT recommendations, denoting successful reputation management. However, this study demonstrates that a positive response is not guaranteed regardless of alignment with SCCT recommendations. The replies were not necessarily in response to the content of the tweets. Nevertheless, the concerns and issues raised are valuable insights and provide

airlines with opportunities for continual improvement. The analysis supports that people need human connection and empathy during crises and prefer live agents over bots. They value responsiveness from businesses at such times, and complaints on this aspect suggest the need for customer service support improvement. On this note, this study supports Twitter as a viable customer service platform. With its convenience and increasing relevance, airlines should leverage the platform and not treat it as supplementary to other social media networks.

What the coronavirus pandemic prompted in airlines' communication is the inculcation of confidence among passengers. There was an emphasis on safety and public welfare, which were indispensable factors during the crisis. A comparison of sentiments before and during the pandemic reveals a change in priorities during the health crisis. The significant number of neutral and slightly negative sentiments reflect airlines' performance and passengers' satisfaction.

Recommendations for further research include extending the timeframe to include post-crisis communication or airlines after travel restrictions and investigating airlines from other regions to compare emerging themes and employment of crisis response strategies from a cultural context.

For management practice, the study recommends that airlines practice responsiveness, especially during crises where levels of uncertainty are high. This study emphasizes public safety for crisis communication, which can be achieved by disseminating instructing information. This study also proposes Twitter as a viable crisis communication channel and customer service platform.

For policy, this study recommends a mandate for the employment of live agents during crises as they are more conducive to passengers' concerns over bots. Conclusively, chat boxes and bots may be economical for organizations, but sometimes they sacrifice customer satisfaction. This study also recommends that airlines coordinate with the Department of Trade regarding prices, fees, and charges and make this information more accessible as a concern of transparency and credibility to avoid escalation of complaints.

References

- Abarca, C. (2023, June 22). *Nancy Binay expects fewer flight issues after CebuPac, PAL grilling* <https://newsinfo.inquirer.net/1791766/sen-binay-expects-fewer-flight-cancellations-overbooking-from-local-airlines-after-probe>
- Adel, R. (2023, June 26). *Lawmaker seeks suspension of Cebu Pacific's franchise over flight woes*. Retrieved from The Philippine Star : <https://www.philstar.com/headlines/2023/06/26/2276726/lawmaker-seeks-suspension-cebu-pacifics-franchise-over-flight-woes>
- Adi, F., & Kartikawangi, K. (2016). The airline crisis communication: A text analysis of AirAsia press release related to the plane crash from December 28, 2014–March 4, 2015. *Jurnal InterAct*, 5(2), 32-101.

- Archived: *WHO Timeline- COVID-19*. (2020, April 27). Retrieved from World Health Organization: <https://www.who.int/news/item/27-04-2020-who-timeline---covid-19>
- Bautista, L., Canasa, K., Laurente, A., & Ashipaoloye, F. (2022). The Effect of COVID-19 on Airline Practitioners in the Philippines. *Asia Pacific Journal of Management and Sustainable Development*, 10(1), 51-59.
- Benoit, W. (1995). Sears' repair of its auto service image: Image restoration discourse in the corporate sector. *Communication Studies*, 46(1-2), 89-105.
- Boamah, M. (2019). Analysing Crisis Communication Strategies of Airline Companies in United States: A Case Study of Southwest Airline 2016 Power Outage Crisis. *Studies in Media and Communication*, 7(1), 7-16.
- Bouwer, J., Krishnan, V., Saxon, S., & Tufft, C. (2022, March 31). *Taking stock of the pandemic's impact on global aviation*. Retrieved from McKinsey & Company: <https://www.mckinsey.com/industries/travel-logistics-and-infrastructure/our-insights/taking-stock-of-the-pandemics-impact-on-global-aviation>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Bundy, J., Pfarrer, M., & Coombs, W. (2016). Crises and Crisis Management: Integration, Interpretation, and Research Development. *Journal of Management*, 43(6), 1661-1692.
- Cabayan, I. (2023, September 12). *First tranche of Media Crisis Management and Communications Training completed by CAAP*. Retrieved from Journal Online: <https://journal.com.ph/first-tranche-of-media-crisis-management-and-communications-training-completed-by-caap/>
- Cambria, E., Schuller, B., Xia, Y., & Havasi, C. (2013). New Avenues in Opinion Mining and Sentiment Analysis. *Institute of Electrical and Electronics Engineers*, 28(2), 15-21.
- Coombs, W. (1999). Information and Compassion in Crisis Responses: A Test of Their Effects. *Journal of Public Relations Research*, 11(2), 125-142.
- Coombs, W. (2006). The Protective Powers of Crisis Response Strategies: Managing Reputational Assets During a Crisis. *Journal of Promotion Management*, 12(3-4), 241-260.
- Coombs, W. (2007). Protecting Organization Reputations During a Crisis: The Development and Application of Situational Crisis Communication Theory. *Corporate Reputation Review*, 10(3), 163-176.
- Coombs, W., & Holladay, S. (2010). *The Handbook of Crisis Communication*. Blackwell Publishing Ltd.

- Coombs, W. (2014, September 22). *State of Crisis Communication: Evidence and the Bleeding Edge*. Retrieved from Institute for Public Relations: <https://instituteforpr.org/state-crisis-communication-evidence-bleeding-edge/>
- Coronavirus is grounding the world's airlines*. (2020, March 15). Retrieved from The Economist: <https://www.economist.com/business/2020/03/15/coronavirus-is-grounding-the-worlds-airlines>
- COVID-19 pandemic*. (n.d.). Retrieved from United Nations Development Programme: <https://www.undp.org/asia-pacific/covid-19-pandemic>
- Effiong, A. (2014). Managing Reputation Risk and Situational Crisis in Higher Institutions of Learning. *Independent Journal of Management & Production*, 5(2), 1-22.
- Gatzert, N. (2015). The impact of corporate reputation and reputation damaging events on financial performance: Empirical evidence from the literature. *European Management Journal*, 33(6), 485-499.
- Greer, C., & Moreland, K. (2003). United Airlines' and American Airlines' online crisis communication following the September 11 terrorist attacks. *Public Relations Review*, 29(4), 427-441.
- Haruta, A., & Hallahan, K. (2003). Cultural issues in airline crisis communications: A Japan-US comparative study. *Asian Journal of Communication*, 13(2), 122-150.
- He, H., & Harris, L. (2020). The impact of Covid-19 pandemic on corporate social responsibility and marketing philosophy. *Journal of Business Research*, 116, 176-182.
- Khodarahmi, E. (2009). Crisis management. *Disaster Prevention and Management An International Journal*, 18(5), 523-528.
- Kim, Y., Chon, M., & Miller, A. (2014). Cross-national Ongoing Crisis Communication Using Social Media: A Comparative Analysis of Twitter Regarding Asiana Airlines Crash Crisis in South Korea and U.S. *AsianCommunicationResearch*, 11(1-2), 22-51.
- Kreps, G. (1984). Sociological Inquiry and Disaster Research. *Annual Review of Sociology*, 10(1), 309-330.
- Lee, T., Taylor, R., & Chung, W. (2011). Changes in Advertising Strategies During an Economic Crisis: An Application of Taylor's Six-Segment Message Strategy Wheel. *Journal of Applied Communication Research*, 39(1), 75-91.
- Macnamara, J. (2021). New insights into crisis communication from an “inside” emic perspective during COVID-19. *Public Relations Inquiry*, 10(2), 237-262.

- Marsen, S. (2019). Navigating Crisis: The Role of Communication in Organizational Crisis. *International Journal of Business Communication*, 57(2), 163-175.
- Mercurio, R. (2021, November 1). *Air passenger complaints continue to rise*. Retrieved from The Philippine Star :
<https://www.philstar.com/business/2021/11/01/2138079/air-passenger-complaints-continue-rise>
- Misopoulos, F., Mitic, M., Kapoulas, A., & Karapiperis, C. (2014). Uncovering Customer Service Experience With Twitter: The Case of Airline Industry. *Management Decision*, 54(2), 705-723.
- Montalbo, K. (2022). COVID-19 Air Travel: Do Intervention measure Influence Intent? *Journal of Business on Hospitality and Tourism*, 8(1), 258-266.
- Ngai, C., & Jin, Y. (2016). The Effectiveness of Crisis Communication Strategies on Sina Weibo in Relation to Chinese Publics Acceptance of These Strategies. *Journal of Business and Technical Communications*, 30(4), 451-494.
- Nittman, M. (2021). Crisis Communication: The case of the airline industry during the COVID-19 pandemic.
- Ocampo, R. (2020, April 27). *Philippines' airlines plead for Covid-19 bailout*. Retrieved from TTG Asia: <https://www.ttgasia.com/2020/04/27/philippines-airlines-plead-for-covid-19-bailout/>
- Pantano, E., Pizzi, G., Scarpi, D., & Dennis, C. (2020). Competing during a pandemic? Retailers' ups and downs during the COVID-19 outbreak. *Journal of Business Research*, 116, 209-213.
- Seeger, M., & Griffin-Padgett, D. (2010). From Image Restoration to Renewal: Approaches to Understanding Postcrisis Communication. *Review of Communication*, 10(2), 127-141.
- Seeger, M., Sellnow, T., & Ulmer, R. (2003). *Communication and Organizational Crisis*. Bloomsbury Academic.
- Sevillano, S. (2022, September 29). *PH emergency broadcasting must be simple, prompt: EBT delegates*. Retrieved from Philippine News Agency: <https://www.pna.gov.ph/articles/1184994>
- Shang, Y., Li, H., & Zhang, R. (2021). Effects of Pandemic Outbreak on Economies: Evidence From Business History Context. *Frontiers in Public Health*, 9.
- Slagle, D., Chatham-Carpenter, A., McIntyre, J., & Reed, H. A. (2021). The perfect storm in the midst of a pandemic: the use of information within an institution's concurrent crises. *Online Information Review*, 45(4), 656-671.


Sturges, D. (1994). Communicating through Crisis: A Strategy for Organizational Survival. *Management Communication Quarterly*, 7(3), 297-316.

Ulmer, R., Seeger, M., & Sellnow, T. (2006). Post-Crisis Communication and Renewal: Expanding the Parameters of Post-Crisis Discourse. *Public Relations Review*, 33(2), 130-134.

Updated WHO recommendations for international traffic in relation to COVID-19 outbreak. (2020, February 29). Retrieved from World Health Organization: <https://www.who.int/news-room/articles-detail/updated-who-recommendations-for-international-traffic-in-relation-to-covid-19-outbreak>

Yu, M., Li, Z., Yu, Z., He, J., & Zhou, J. (2021). Communication related health crisis on social media: a case of COVID-19 outbreak. *Current Issues in Tourism*, 24(19), 2699-2705.

Zhang, L., & Liu, B. (2016). Sentiment Analysis and Opinion Mining. In *Encyclopedia of Machine Learning and Data Mining* (pp. 1152–1161). Springer New York.

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