

UNIVERSITY OF GHANA

COLLEGE OF HUMANITIES

**EARNINGS PERSISTENCE, EARNINGS MANAGEMENT AND
STOCK RETURNS**

**BY
PARRENDAH ADWOA KPELI
(10422486)**

**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,
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DECLARATION

I, Parrendah Adwoa Kpeli, do hereby declare that this thesis is the result of my own research and has not been documented for presentation in this or any other University. All references in the work have been duly acknowledged. I also declare my full responsibility for any shortcomings in this document.

.....

Parrendah Adwoa Kpeli

(10422486)

.....

DATE

CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

.....
PROF. MOHAMMED AMIDU
(SUPERVISOR)

.....
DATE

.....
DR. WILLIAM COFFIE
(SUPERVISOR)

.....
DATE

DEDICATION

I dedicate this work to the good God Almighty for HIS grace towards me and to my parents, Mr James Paddy Kpeli and Mrs Rebecca Baffour Awuah Kpeli, you have been my biggest cheerleaders in this journey. May the good God almighty bless you!

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ABSTRACT

This thesis examines the interactive effect of persistence in earnings and earnings management on stock returns. It employs both firm and macro-level data comprising of 39,490 listed firms from 1995 to 2013 across 45 countries. By employing different methodologies and estimation techniques on each research objective, the study provides the following empirical evidence: first, there is the presence of strong earnings persistence and a relatively low speed of adjustment. On the determinants of persistence of earnings, this study shows that low and least profitable firms manage their earnings. More so, the study identifies that macro-economic factors affect stock returns. Finally, this study identifies an insignificant relationship between the joint effect of earnings persistence and earnings management on stock returns.

The study makes the following contributions to literature: First, the study provides evidence of strong profit persistence across industries and regions in both developed and emerging economies, however there are variations in the level of persistence across these industries and regions involved in the study. Additionally, the study provides evidence of earnings management among low and least profitable non-financial firms. Finally, the study identifies an insignificant relationship on the sensitivity between earnings persistence and earnings management on stock returns.

In conclusion, the thesis supports the need for policy and regulations to guide the level of discretion provided by the reporting standards on managing earnings. More so, investors, should also consider other micro economic factors such as the size and leverage of the firm, the nature of intangible assets and the macroeconomic conditions in which the firm operates before making any economic decision.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Earnings serve as an indicator of a firm's economic performance (Azar, Zakaria & Sulaiman, 2019). They determine the value of a company. As a vital element on the statement of performance, it shows the level of value adding activities that firms may be engaged in. Earnings are, therefore, the fundamental element that financial information users look out for in the financial statement to form an opinion on the firm (Dawar, 2014). The decision usefulness of this information places a task on directors and managers to ensure that the earnings of an organisation at the end of each financial year is in line with set targets and goals of the business.

Since corporate earnings are of value relevance and have a direct impact on stock returns, managers may be tempted to manipulate earnings figures to achieve stock value maximisation. This practice can be both unethical and illegal. The practice of manipulating earnings becomes illegal and unethical when the managers disclose wrong figures in the financial statements which are not in conformity to Generally Accepted Accounting Principle (GAAP) and stipulated accounting standards (Ruiz, 2016). Some organisations deliberately manipulate earnings upwards on their financial statements in order to conceal the deficiencies in their accounting practices or to cover up for unexpected fluctuations in sales (Phillips, Pincus & Rego, 2003). These companies are therefore practicing earnings management. According to Healy and Wahlen (1999, p. 368): 'Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that

depend on reported accounting numbers’’. A significant number of firms are using earnings management to stabilize profits or to conceal the short falls in their financial performance (Scott, 2009; Gisbert & García, 2003). Thus, earnings management is a tool that management use to control the firm’s income with the goal that the figures reported meet foreordained targets.

Managers can influence financial reporting outcomes because they are required to prepare budgets and can select different accounting procedures (Hemmer & Labro, 2019). For instance, management may make estimates that affect the book values of assets and liabilities or may choose an accounting treatment that leads to higher reported earnings. The goal is more about moving money around so that the reported earnings appear better from one period to the next. Literature reveals that managing earnings occurs for several reasons; these include debt covenants, meeting analyst forecasts, avoiding tax, and stock price adjustment (Ruiz, 2016). Managing earnings enables consistent earnings values to be disclosed in the financial statement and also help managers to stabilize reported profit and predict profit trend over time. The stability, predictability, variability, and trend in earnings are known as persistence. Assessing the persistence in earnings is relevant in ascertaining earnings power and boosting the financial information users' confidence in firm performance.

Stability in earnings is also relevant for pricing stocks and for predicting changes in stock returns. The effect of earnings persistence on the capital market is essentially the chances of obtaining more capital appreciation, high future returns, and a steady link between earnings and capital market values. Thus, strong persistence creates a positive link between earnings and share values, which subsequently affects market response to the variations in announced outcomes (Dechow,

Ge, & Schrand, 2010). The sustainability in earnings is influenced by so many variables which may make the reliance on earnings as a metric to predict stock returns insufficient. However, extant studies reveal that investors only focus on earnings in predicting stock returns at the neglect of other components and indicators of financial performance. (Leal, Girao, Lucina, & Martins, 2017; Sunder, 2014; Heyrani, Arkadani, & Arkadani, 2013; Penman & Zang, 2002). This study, thus, analyses the extent to which earnings management and earnings persistence influence stock return using data that covers many regions of the world.

1.2 Problem Statement

Given the importance of financial information to the users' decision making, it has become critical that the quality of information disclosed is not compromised so as not to misguide users (Heyrani, Arkadani, & Arkadani, 2013). Previous study reveals that accounting information is used to predict various outcomes (Dichev & Tang, 2009) of which equity valuation is no exception.

The fundamental component on the face of the financial statement that users focus on to make decision is earnings (Azar et al., 2019; Dawar, 2014; Pimentel & Aguiar, 2012). The focus on earnings brings to bear that the market only pays attention to the net operating income with less regard for other indicators of financial performance. Meanwhile, the net income is a final presentation of an extensive accounting process which is subject to the discretion of management from one step to the other (Chan, Chan, Jagedesh, & Iakonishok, 2006). It is with this reason that much attention has been given to accounting earnings in research. Most research on earnings reveals that organisations use earnings manipulation techniques to stabilize profit and maintain firm's value in the eyes of their users (Li, Wang, & Rong, 2013; Dichev & Tang, 2009; Frankel &

lotiv, 2009). Others show that the stability of earnings is as a result of cash flow movement (Dechow, Sloan, & Zha, 2014; Moienadin, Tabatabaenasab, & Atashband, 2014), while others associate earnings stability to accrual accounting (Allen, Larson, & Sloan 2013, Dechow & Ge, 2006). Firms are however aware that stable earnings attract favor from investors and financial analysts as they use it as a criterion to predict permanence in earnings and measure performance.

Studies reveal that persistence in profit influences the perceived earnings quality positively and hence has value relevance on the capital market (Francis et al., 2004; Penman & Zhang, 2002). Studies on the association between earnings persistence and stock returns, however, reveal different outcomes. For instance, Vishnani and Shah (2008) assess the ability of financial earnings of Indian firms to predict stock prices on the capital market. They identify that financial statements have a negligible value relevance to reactions on the market. Saeed, Saeedi, and Ebrahimi (2010) however, document no value relevance in cash flows and accrual component of earnings in predicting stock returns on the Iranian capital market. In contrast to earlier outcomes, Akbar et al. (2011), shows that cash flows have value relevance that is incremental in predicting stock prices in the UK than earnings and funds flow. More so, Pimentel and Aguiar (2012) also record evidence of no relationship between earnings persistence and stock returns when evaluating the time variation of profit persistence in Brazil. Dawar (2014) investigate the persistence ability of accounting variables over time and their value relevance in India and the evidence shows a positive relationship between the accrual component of profit and stock prices. More so, Pimentel and De Aguiar (2016) records that earnings persistence has a strong value relevance in financial valuation and analysis of Brazilian listed firms. Also, Leal et al. (2017) on their part analyse the effect of the persistence in cash flows and accruals on the value relevance of firms listed on the Brazilian stock

exchange. They record that there is a link between earnings, cash flows, and market returns and that, the extreme values of these variables reduce their predictive power and subsequently, their value relevance. These studies focus on establishing a relationship among financial variables, earnings, and stock returns with contradictory results hence provide room for more research in this area. However, Amidu and Havey (2016) assess the profit persistence of banks in Africa by analyzing the extent and mobility of persistence in earnings, the speed of convergence and the determinants of earnings persistence in the light of competition and earnings management of these banks. Their study show that bank earnings management and regulation affect persistence but did not address the value relevance of the above outcome on stock return.

Ultimately, it can be asserted that stock returns depend on the relationship between earnings management and persistence. Most studies have examined the relationship between these variables but have done them independently (Leal et al., 2017; Amidu & Harvey, 2016; Pimentel & De Aguiar, 2016; Li, et al., 2013; Dichev & Tang, 2009). While some studies have hinted that earnings management affects earnings persistence (Pimentel & De Aguiar, 2016; Dichev & Tang, 2009). However, Amidu and Harvey (2016) concludes that earnings management affect the persistence of profit. Walker (2013) also shows that studies on the relationship between earnings management and stock returns are underdeveloped. On the relationship between earnings persistence and stock returns, some studies show a positive relationship (Hui, Nelson, & Yeung, 2016; Dawar, 2014; Dechow, Ge, & Shrand, 2010), others show a negative relationship (Leal, et al., 2017; Vashni & Shah, 2008), and no relationship (Pimentel & De Aguiar, 2016; Pimentel & De Aguiar, 2012; Frankel & Lotiv, 2009), thereby contributing to the mixed outcomes in this area. This study, seeks to answer these questions; to what extent does profit persist? Does earnings management influence

profit persistence? What is the effect of profit persistence on stock returns? What influence does earnings management have on stock returns? Does the stability in earnings resulting from the manipulation of earnings affect stock returns? If so, then how does the stability of earnings resulting from earnings management influence stock returns? This study, fills this gap by first of all establishing the extent to which profit persist, the effect of earnings management on the persistence of profit and subsequently analyzing the interaction among persistence, earnings management, and stock returns in developed and emerging economies. Specifically, the study tests two main hypothesis, first, earnings management increases persistence. Secondly, the interaction between earnings management and persistence has an overall impact on stock returns. Although previous studies have not tested both hypotheses, existing studies have tested the first one, thereby adding to the vast knowledge on persistence and earnings management (Leal et al., 2017; Amidu & Harvey, 2016; Li et al. 2013; Dichev & Tang, 2009, Frankel & Lotiv, 2009).

1.3 The Objectives of the Study

The main objective of this study is to investigate the joint impact of earnings persistence and earnings management on stock returns using data set that covers many regions of the world.

Specifically, the study seeks;

- i. to analyse the extent and mobility of earnings persistence and the speed of convergence.
- ii. to examine the determinants of earnings persistence.
- iii. to examine the interactive effect of earnings management and earnings persistence on stock returns.

1.4 Significance of the Study

This study contributes to knowledge, practice, and policy. This study adds value to knowledge as it combines dynamic approaches to assessing the impact of earnings management and persistence on stock returns of firms across the globe. The study equally provides knowledge on the earnings management practices of firms, the determinants of earnings persistence among these firms and the impact of earnings persistence and management on stock returns. Hence this study serves as a reference point for both researchers and knowledge seekers in the area of earnings persistence and management and capital market disclosure. Additionally, this study contributes to practice by providing financial information users with guidelines to use in analyzing financial information for critical decision making. Finally, this study contributes to policy by making accounting regulatory bodies aware of the impact of earnings manipulation on earnings stability and how relying on such information may affect subsequent decisions taken. This will make these regulatory bodies put in place more measures to guide the preparation, presentation of financial information, and its subsequent use for valuation purposes.

1.5 Organisation of the Study

The study is made up of five chapters. The first chapter of the study gives an overview of the entire study. It comprises of the background of the study, problem statement, objectives of the study, significance of the study, and outline of chapters. Chapter two provides the relevant theoretical and empirical review on earnings persistence, earnings management, and stock returns. Pertinent issues for an adequate understanding of persistence, earnings management, and stock returns are discussed. Chapter three discusses the methodological techniques employed. The research design, population, data collection, and model specification, selection of dependent and independent

variables and method of analysis are included as related subsections. Chapter four which covers results and discussion, presents and gives interpretations to data collected for the study through the methods stated in chapter three. It reports the findings and the results while discussing the findings in relation to the literature on persistence, earnings management, and stock returns. Chapter five gives a conclusion on the entire study and presents some recommendations. The chapter consists of summary, conclusion, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviews the literature in the subject area. It starts with the theories underlying the study and continues with a discourse of empirical literature addressing the extent and mobility of earnings persistence, the speed of convergence and the influence of persistence and earnings management on stock returns.

2.2 Theoretical Overview

Theories are relevant as they are used to predict the outcome of an event or situation by defining the relationship that exists between a set of variables. A theory is a unit of knowledge comprising facts, assumptions, and hypotheses. This unit shows how facts can be subordinated to general principles or laws and how they interrelate.

Theorizing, then, is the systematic process of formulating and organizing ideas to describe a phenomenon, and a theory is a complete set of empirically testable, interconnected ideas formulated to explain those phenomena. For this study, the relevant theoretical underpinnings are; Information Asymmetry and Efficient Market Hypothesis.

2.2.1 Information Asymmetry

Information is vital in every business environment. Due to its importance in decision making, it is treated as a very delicate tool. In every market, the availability of information would help the participants to make a right decision. Information asymmetry is a situation that occurs when parties having access to private information in a market use it to their advantage. Information asymmetry

may be either buyer or seller centered. The presence of information asymmetry may lead to moral hazard or adverse selection (Stiglitz, 1975; Spence, 1974). Healy and Palepu (2001) opine that information asymmetry and agency conflicts among managers and investors influence a need for financial disclosure.

A moral hazard issue occurs when external investors are not able to notice the choice of action made by managers. Jensen and Meckling (1976) associate this problem with the agency theory. In this regard, the theory asserts that organisations work under uncertainty conditions, and this leads to asymmetric information among managers and investors. Adverse selection occurs in the market when investors gain access to private information, which is value relevant and trade based on this information (Brown & Hellgiest 2007). This form of symmetric information is commonly known as the hidden type of information asymmetry.

Various studies have researched on the influence of information asymmetry on disclosure and quality of profit. Studies on disclosure assume that symmetric information can exist even in an efficient capital market where managers have superior private information on their organisation's performance than investors. Lundholm and Myers (2002) as well as Gelb and Zarowin (2002) identifies that when reporting quality is high, more information about earnings in the future is reflected by current stock returns. Their argument suggests that information asymmetry is negatively influenced by the quality of public disclosure. Hellgiest and Brown (2007) also document similar result by arguing that information asymmetry reduces disclosure quality by modifying the incentive to explore private information and the trading behaviour of uninformed investors. Bhattacharya, Desai, and Venkataraman (2013) also explore the link between quality of

earnings and asymmetric information for a large sample of New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotations (NASDAQ). They found that the influence of earnings quality on information asymmetry is affected by the information setting in which the firm operates and it is stronger for firms operating in a weak reporting setting.

Studies have established that, high information asymmetry increases the risk of adverse selection and reduces liquidity for participants on the market (Bhattacharya, Desai, & Venkataraman, 2013). Therefore regulators are more concerned about the nature of information and its decision usefulness on the capital market and hence develop principles to reduce the level of asymmetry in announced information (Fakhfakh & Nasfi, 2012; Healy & Palepu, 2001).

2.2.2 Efficient Market Hypothesis (EMH)

Based on the argument that, in a market where there are well informed, and intelligent investors, the pricing of securities will be done accurately and reveal all forms of information, the EMH evolved. A market is efficient when it allows for ongoing competition between large numbers of rational profit-maximizing investors with the intent of forecasting the future market value of securities. In this market, essential and current information is accessible to all relevant parties. Thus making it easier to infer from prices all kinds of information.

The EMH gained adherent after 1969 when it was proven that, stock prices react rapidly to new information and does not subsequently show any strong trend. This adjustment in trend occurs after stock-split, mergers, and changes in the share policies of a firm (Fama et al., 1969). However, subsequent studies found that after an announcement of a change in profit, stock prices do not just

adjust instantly but fluctuates for a substantial number of periods (Ball & Brown, 1968; Chan, Jegadeesh, & Lakonishok, 1996; Fama, 1998). The EMH has resulted in several studies testing the presence and extent of market efficiency. Most of these studies provide evidence to support the EMH. The broad acceptance of the EMH makes it the reference point of contact in studies involving the formation of asset prices.

Literature provides three forms of market efficiency; To begin with, the weak form EMH emphasizes that stock prices fully reflect all available past or historical information on the sequence of pricing. This form of EMH makes it impossible to do technical analysis, a prediction of stock behaviour based on available information. The weak form of EMH is linked with 'Random Walk Hypothesis.' The argument behind the random walk theory is that if the informational flow is not delayed and is subsequently replicated in the prices of stocks, then an announcement of price changes in future will only reflect the future price change without cognizance to the change in today's price.

Secondly, the semi-strong form of EMH asserts that current stock prices reflect all publicly accessible information. The argument underpinning this form is that, if markets reflect all publicly available information, then an analysis of financial statement and disclosure of any public information (i.e., fundamental analysis) will not give rise to abnormal economic returns. Most studies on the behaviour of stock market returns test the EMH in its weak or semi-strong form (Malkiel & Fama, 1970; Fama, 1991). Finally, the strong form of EMH emphasizes that both past, public and all other form of information is fully included in market prices. Thus, those with private

information cannot capitalize on it to obtain higher returns since there is full disclosure of these information on the market.

Managerial decisions are affected by earnings management. Earnings management on the other had affects the level of information asymmetry. Studies on Information asymmetry have identified that information asymmetry affects the quality of disclosure and the nature of earnings information reflected on stock returns in an efficient market (Hellgiest & Brown 2007; Lundholm & Myers, 2002; Gelb & Zarowin 2002). Thus level of information asymmetry affects disclosure of earnings and subsequently the information content reflected in stock returns. The above assertion affirms the relationship existing between information asymmetry, the efficient market hypothesis, earnings persistence, earnings management and stock returns. Borrowing from both theories the study therefore seeks to identify the information content of earnings reflected in stock returns through persistence and earnings management.

2.3 Persistence

The stability, predictability, variability, and trend in earnings are known as persistence. Assessing the persistence in earnings is relevant in ascertaining earnings power and boosting the financial information users' confidence in firm performance. Persistence is regarded as a desired characteristic of earnings since it implies that the disclosed results are recurring and stable over the periods (Dechow et al., 2010). Sustainable earnings win much favor from financial analysts and investors as they invoke benchmarks to assess permanent earnings. Studies reveal that the persistence of profit positively influences the perceived “quality of profit” and therefore, the value relevance of profit (Lev, 1983; Kormendi & Lipe, 1987; Lipe, 1986; Penman & Zhang, 2002;

Francis et al., 2004). Most studies on persistence have been done in the light of cash flows and accrual component of financial statement. Most of these studies show that cash flows persist in predicting earnings better than accruals (Leal, et al., 2017; Heyrani, Arkadani, & Arkadani, 2013; Penman & Zang, 2002).

2.3.1 Determinants of Earnings Persistence

Various studies have identified various factors that lead to the persistence of profits among firms over and across time. In their study on profit persistence, Maruyama & Odagiri (2002) records that profit performance is positively related with market share and that the sales recorded by these firms relative to that of the industry reflected a positive impact on long term profits, this impact was however significant in the subsequent period. Hanlon (2005) also embarked on a study in the US to investigate the role that book-tax value differences play in predicting profit persistence and whether investors rely on this component to assess subsequent persistence in earnings using the Mishkin (1983) test and Fama and MacBeth (1973) annual return regression to analyse the data gathered from these firms. The study discovered that firms with small book tax differences have more persistent earnings than firms with large book-tax differences. Also, investors reduce their expectation of future earnings persistence on firms with significant book-tax differences. Stephan and Tsapin (2008) also document that the structure of ownership and regional location of the firms impacts the determinants of profits in these markets significantly. More specifically, they document that firms located in the north center of Ukraine have higher profitability than firms located in the other regions. Hirsch and Gschwandtner (2013) investigates the level and factors of profit persistence of firms in the food industry, from 1996 to 2008 across five countries. They

document that firm size is of relevance to persistence in profit while age, risk, and intensity of R&D have a negative influence on profit.

When investigating the rapid change in earnings properties by observing a sample of 189,608 firms from 1970 to 2009, Srivastava (2014) identified that the continues fall in the quality of earnings is not informed by the differences in generally accepted accounting principles (GAAP) nor due to the quality of profit of previously listed firms but informed by differences in the sample of firms. Eklund and Desai (2013) examined the profit persistence in the light of regulations governing entry amongst incumbent firms. Their study included about 20,000 firms across 59 countries for a sample period beginning from 1998 to 2011. They discovered that regulations surrounding entry is positively linked with the stability of profit in incumbent firms, but an entry in itself is negatively linked with profit persistence. Thus, the administrative and time burden imposed by entry regulations move positively with profit persistence to some extent, but the financial burden imposed by entry regulation helps to improve the persistence in profits. Hirsch and Gschwandtner (2013) investigates the factors that determine the profit persistence of firms in the food industry, from 1996 to 2008 across five countries. Using Arellano and GMM estimator, they ascertained a lower level of persistence in profit in the food industry. They associated these findings to intense competition and higher retailer concentration.

Gschwandtner (2012) analyses the profit persistence of firms across three different time streams. They used the best lag model and auto regression model in their analysis. They identified size of industry, firm size, growth in industry risk, and advertising as critical determinants of persistence. Pervana, Pelivan, and Arnerić (2015) document a statistically significant link among all the variable studied and Return on Asset (ROA) when examining the profit persistence and its

determinants on Croatian banks. More specifically, previous year's profit, size of the bank, risk of solvency, the concentration of the industry, growth in market, GDP, and intermediation were positively affecting banks' profits while the management of expense had a negative impact.

Leal, et al. (2017) tried to assess the impact of cash flows and accruals on persistence and quality of earnings of firms in Brazil. They used the quantile regression to analyse the influence of these explanatory variables on value relevance, persistence, and profit quality of these firms. Although they ascertained that cash flows and earnings are predictive tools for return on shares on the capital market, the primary outcome of their study revealed that earnings are less persistent than cash flows. Their evidence was in line with the expectations that, the presence of accruals made earnings less persistent as they show the unstable variations in the economic effects of assets and liabilities.

Pimentel and Aguiar (2012) tried to estimate the time-varying behaviour of interim earnings persistence and also assess the link between interest rates, inflation, return on stock, and persistence. They collected data from companies in Brazil from the period of 1995 to 2011. They document that a positive change in earnings persistence is as a result of an anticipated negative change in both interest rate and inflation. They then infer from these results that managers might be using accounting methods to minimize the effect of future macroeconomic adversities in earnings. Evidence from Amidu and Harvey (2016) equally posit that earnings management and regulations affect profit persistence of banks. They then associate the reduction in the speed of convergence among these banks to competition and the 2007/2008 financial crisis.

2.3.2 The Extent and Mobility in Earnings Persistence

The extent and mobility of earnings persistence examines the level and length of time taken for firms to switch between profit classes. Evidence on profit persistence varies across firms and time. Pervana, Pelivan, and Arnerić (2015) investigated the profit persistence of banks in Croatia and its subsequent impact on bank performance. Using Markov Chain analysis, they analysed the stability in banks profit from a period of 2002 to 2010. Results on persistence show that ROA and profit persistence are negatively linked. As the profit of the banks rises, the probability of profit persistence reduces, and vice versa. Thus the persistence in profit was high for banks with low profitability and low for banks with high profitability.

Maruyama and Odagiri (2002) extended the studies of Odagiri and Yamawaki (1990a) which sought to study the profitability of 376 manufacturing firms in Japan from the period of 1964 to 1982 by investigating the same profit persistent motives for an additional 15 years. Their study consisted of 357 samples. Using an auto regression model, they document that the results gathered are consistent with that of Odagiri and Yamawaki (1990a) and that these firms continue to earn profit rates in the long run which are above average.

Eklund and Lappi (2016) researched on the profit persistence of 19 countries in the European Union (EU) in the light of competition among the EU member states. Their study comprised of 5,500 sample and a sample period of 1995 to 2013. They employed the simple first order auto regression model to analyse the persistence in earnings among these firms. They record variation in the persistence of profits of these firms. Thus, there were differences in the level of competition across the EU. Yurtoglu (2004) embarked on a study in turkey to test the intensity and nature of

competition in Turkey by looking at the persistence in the corporate rates of returns of these firms. They examined data from 1985 to 1998 for 172 manufacturing firms. The results from their time series analysis revealed variations in the profit persistence of these companies. They associate the difference in persistence to firm characteristics and conclude that the intensity of competition among Turkish manufacturing firms is comparable to other developing countries. Bektas (2007) also assessed the profit persistence of banks in Turkey. Their study employed a panel data of 28 surviving banks for a study period commencing from 1989 to 2003. The results from their first order auto regression and unit root analysis provides that in the long run, there is the absence of profit persistence among the Turkish banks. They then conclude that competitive forces among these banks, interact to eliminate above the norm profit.

Stephan and Tsapin (2008) investigated the persistence of profits among emerging markets in Ukraine. Their study used the Markov Chain analysis to assess the persistence in profits, the dynamic panel GMM estimation to test the speed of adjustment and the quantile regression to test the factors and differences in profits among firms in emerging markets. Their study covers a sample period from 1999 to 2006 with approximately 3,000 firms. They report that there is a moderate level of persistence in profit. A similar study by Amidu and Harvey (2016) analyses the profit persistence of banks in Africa. They apply Markov Chain to analyse the extent and mobility of persistence in profit, the dynamic autoregressive model to test the speed of adjustment and the quantile regression model to investigate the factors that determine profit persistence for banks in Africa. They identified a strong persistence in profit among these firms. More so, Gugler and Peev (2018) examined the bank profitability dynamism in six countries for 21 years. They identified that profit persists in all the six countries studied but recorded less evidence on the extent of profit persistence in the long run.

2.3.3 The Speed of Convergence in Earnings

The speed of convergence describes the rate at which profit can adjust to the norm over a specific period. Empirical review on convergence reveals different outcomes. Gschwandtner (2003) embarked on a study to assess the persistence of corporate profits in the US for 187 surviving firms from 1950 to 1999. The study was conducted in the light of competition among these firms. They document evidence of more profit persistence, but the results from their autoregressive model show that there are firms that perform below standard among the firms that did not converge. Dichev and Tang (2009) examined the relation between unstable earnings and earnings predictability. The empirical results reveal that unstable earnings provide positive discrimination on relative earnings persistence and predictability up to five years. More so, they identified that analysts make systematic errors in their interpretations of information on volatile earnings, incorporating less than half of its full implications. They associate the moderate level of profit persistence to intense competition among these firms in the emerging markets. Stephan and Tsapin (2008) identify a relatively low speed of adjustment in profit level among the firms in the emerging markets in Ukraine. Alongside Amidu and Harvey (2016) identify a relatively low speed of convergence when investigating the profit persistence of banks in Africa using the dynamic auto regression model.

2.4 Persistence and Stock Returns

Studies document that strong persistence creates a positive link between earnings and share values, which subsequently affects market response to the variation in announced outcomes (Dechow, Ge, and Schrand 2010). The sustainability in earnings is influenced by so many variables which may make the reliance on earnings as a metric to predict stock prices insufficient. However, extant

studies reveal that investors only focus on earnings in predicting stock prices at the neglect of other components and indicators of financial performance (Leal et al., 2017). Dawar (2014) assessed the value relevance of profit persistence and its cash flow and accrual component in India for six years. The study used the Ohlson model to measure the constructs and used the fixed effect panel regression model to analyse the data gathered. Results from the study revealed that the earnings construct are relevant for market valuation. However, accruals and cash flows component, are not relevant. On the whole, the study shows that investors fixate on earnings when predicting stock prices. Mashayekhi and Aghel (2016) also examined the impact of growth, size, and persistence on the reaction of shareholders during the disclosure of unexpected earnings. The results from their study reveal that growth in earnings and size is related to Earnings Response Coefficient (ERC); however, no relationship was found to exist between persistence and ERC. Dechow, Richardson, and Sloan (2014) examined the persistence of profits in the light of sources, uses, and pricing of the cash component. They used a sample size of 237,673 firms and a sample period of 1950-2003. They identified that the strong persistence of the cash component is from its subcomponents. They then conclude that their findings are as a result of the misunderstanding of investors on diminishing returns to new investments.

Hui, Nelson, and Yeung (2016) investigated the relative persistence of firm-specific and industry-wide earnings based on previous predictions. They used a sample period from 1988 to 2011 for their analysis and Mishkin generalized Least Square regression to analyse their pricing and persistence of the industry and firm-specific accruals and cash flows. Results from their study show that firm-specific earnings are less persistent than industry-wide earnings. However, investors attach equal relative importance to both constructs hence causing asset prices to

underweight the persistence of industry earnings but overweight that of firm-specific earnings simultaneously. When examining the informative comparative ability of stock prices to reflect future earnings, Choi, Choi and Myers (2019) identify that stock prices reflect firm specific future earnings better than market level earnings through comparability.

Pimentel and Aguiar (2016) investigated the role of earnings persistence on Brazilian firms from 1995 to 2013. They record that the persistence in earnings is relevant for analysis and valuation of firms, however, no significant link exist between long-term value orientation and profit persistence. They then conclude that firms with lower profit persistence provide less accurate value estimates than firms with high profit persistence. Kubota and Takehara (2019) investigated the extent to which stock prices reflect information contained in the earnings component of the financial statement in Japan. They found that 1% unit shocks in the earnings components affect stock prices by 2% to 2.5%. Gschwandtner and Hauser (2016) also identified a positive link between stock returns and profit persistence when investigating the relationship between the persistence in profit and stock returns for firms listed in the US.

2.5 Earnings Management

"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." (Healy & Wahlen, 1999 p. 368). Earnings management activities may occur because managers have flexibility in making accounting or operating choices or because managers are trying to convey private information to financial statement users.

Managers express judgment for the purpose of concealing actual performance in order to either influence the stock performance, to benefit from the contractual terms between the firm and managers, or to influence regulatory decisions (Sun & Rath, 2008). A common criticism of earnings management is that it reduces transparency by obscuring the “true” earnings of the company. However, leading academics argue that both the level and patterns of earnings convey information and that even when earnings management conceals information, it can still be beneficial to shareholders.

Earnings management can be classified into three categories: fraudulent accounting, accruals management, and real earnings management. Fraudulent accounting involves accounting choices that violate GAAP. Accruals management involves within-GAAP choices that try to "obscure" or "mask" actual economic performance (Dechow & Skinner, 2000). While Real earnings management (RM) occurs when managers undertake actions that deviate from the first best practice to increase reported earnings. Examples of RM include cutting prices towards the end of the year to accelerate sales from the next fiscal year into the current year, delaying desirable investment, and selling fixed assets to affect gains and losses, all with the aim of boosting current period earnings (Gunny 2005). A large body of studies document that accruals are the fundamental elements used to manage earnings as it allows managers to exercise some level of discretion on earnings in their reporting practices. Collins and DeAngelo (1990) and Subramanyam (1996) argue that accruals management is an efficient means of signaling managers' private information about earnings prospects. Hunt, Moyer and Shevlin (2000) also discover that, on average, allowing managers to exercise discretion in financial reporting rises, rather than lowers, the informative nature of earnings.

Managing earnings influence stock prices. Tucker and Zarowin (2006) discovered that a change in the current stock price of higher-smoothing firms, contains more information about their future earnings than does the change in the stock price of lower-smoothing firms. Walker (2013) also documents that there is a significant amount of studies to show that managers manipulate profit in order to affect how the share price of the firm evolves. However, studies on the relationship between earnings and stock prices are underdeveloped.

2.5.1 Empirical Review on Earnings Management.

Most studies on earnings reveal that organisations use earnings management techniques to stabilize earnings and maintain substantial value in the eyes of their users, (Dichev and Tang, 2009, Frankel and Lotiv, 2009) as evidence exist to show that one of the factors that influence persistence in profit is earnings management (Pimentel & Aguiar, 2012; Amidu & Harvey, 2016). Fakhfakh and Nasfi (2012) using a sample of French companies, tried to examine factors that determine the management of earnings in the light of mergers and acquisition. Their study focused on the acquiring company from 1998-2008 and measures earnings management by discretionary accruals and identify two types of determinants. These are those identified with the operational behaviour of the firm, which are size, merger commissioner, and the accounting criteria used to ascertain the ratio of exchange. The second group of determinants is identified with the behaviour of the acquirer, which are financial and ownership structure, and the independence of the board. They document that the size and the accounting criteria have a positive impact on the management of earnings among the acquiring firms. While, the auditor quality, independence of the board, and discretionary accruals have a negative influence on earnings management.

Abaoub, Homrani, and Gamra (2013) also explored the factors that affect the management of earnings among universal banks in Tunisia. They used content analysis to ascertain the viable econometric model to use to execute their study. They analysed the sample of banks from 1999 to 2010. Their results reveal that earnings management practices exist among banks in Tunisia. Most importantly, the management of earnings was identified with operational risk and low loan loss provision and was very high among the banks during their study period as operational risk increased. They document that these banks manage their earnings downward by increasing provision for low loan loss and vice versa. More importantly, they record that earnings management practices were very high during their study period when operational risk was high. They then concluded that earnings manipulation allows banks to hide the deficiencies in their operations. However, their study excluded executive compensation and economic growth as explanatory variables which, when present, could have helped improve their analysis.

Another study was done by Charfeddine, Riahi, and Omri (2013) to look at factors that influence the management of earnings in emerging countries, specifically Tunisia. Two types of factors which are constraint and incentive factors were considered in their analysis. They gathered data from 19 firms in Tunisia from 2003 to 2009. The results of their regression analysis show that in all, six of the nine variables determine the earnings management and only three variables from the six determinants are simultaneously significant in the three models. Their findings revealed that some control mechanisms such as the size of the board, the external audit quality, and the ownership propriety are inefficient in the studied context. Thus, it suggests that these mechanisms are operated in order to facilitate managers' entrenchment strategy.

Chan, Chan, Jegadeesh, and Lakonishok, (2006) embarked on a study to investigate into three reasons why accruals predict stock returns in industries in the UK. They evaluate in years that

accruals raise the operating performance and specific elements and then develop a complicated process for breaking down the components of accruals into discretionary and non-discretionary accruals. Results from their multivariate regression analysis reveal evidence of managers using accruals to manipulate earnings. More specifically, they identified that an increase in accruals signal a swift turning point in the wealth of the firm. Firms that appear to have high returns on stock and growth in earnings in years before the rise in accruals show a reversion in growth to a more reasonable level. More so, they record that earnings reveal no form of weakness but continue to persist in the years that accruals appear to be high and signaling that the past growth of the company has faded. They, therefore, conclude from the patterns in earnings that high accruals firms already face symptoms of cooling in their growth, but employ the use of creative accounting to delay reporting the bad news.

On the relationship between earnings management and stock returns, results from a study conducted by Wu, Lin, and Fang (2012) on listed firms in Taiwan reveal that a negative relationship exists between earnings management and stock returns.

Rahman, Moniruzzaman, and Sharif (2013) tried to provide insight on earnings management and the techniques used to manage earnings. The study brings to the fore that the type and extent of managing earnings are dependent on factors such as incentives on the stock market, political and regulatory motives, and personal incentives. The study adopts a content analysis approach and concludes that earnings management is used as a tool to satisfy the manager's self-interest; however, when ethically used, it can benefit shareholders welfare. The study prescribes that the improvement of corporate governance, revising accounting standards such that there is no room for loopholes to manage earnings and independence of the auditors and their ability to establish carefulness in detecting earnings management will help ensure that the maximum benefit is

obtained from earnings management. Atu, Osaretin, Manager, and Osaretin (2016) also embarked on a study to investigate the determinants of earnings management among randomly selected firm quoted on the Nigerian stock exchange. The study adopted an ordinary least squares regression model to assess the effect of the following independent variables, which includes; the size of the firm, type of audit firm, corporate governance and financial performance on earnings management. The outcome of their study was in two folds. First, they recorded that, a significantly negative relationship exists between audit firm type, corporate governance, and earnings management while no relationship was found to exist between, financial performance, size of a firm and earning management.

Finally, Paiva and Lourenço (2016) examined the determinants of earnings management among listed firms in the hotel industry across 15 countries using discretionary accruals as a measure of earnings management. Their study also examines country-specific and firm variables that have likely potential impact on earnings management. These explanatory variables are; Cash flow, Leverage, growth, frequency of negative earnings, and size. The results from their regression analysis record that the characteristics mentioned above are the main factors that influence the management of earnings among firms in the hotel industry across the world.

2.6 Summary

This chapter presented a theoretical overview of the subject matter followed by discussions into the empirical findings on the extent and mobility of profit persistence, speed of convergence, and the determinants of persistence. The empirical relationship that existed between persistence and stock returns and persistence and earnings management in scholarly journals were also discussed.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The source of data and sample selection are discussed in this chapter. More so, the key variables under the study and the metrics used to measure these variables are also discussed in this chapter. The estimation techniques used are also presented.

3.2 Research Paradigm

Research Paradigms are principles and beliefs that shape the researcher's understanding of the world they live in or how they interpret a phenomenon in the world in which they live. They are the philosophical assumptions underlying research. Five practical research paradigms are identified in the literature. These include interpretivist, relativism, realism, critical realism, and positivism. The interpretivist is of the view that there is no single reality or truth, hence the need to interpret events or outcomes. Researchers in this area adopt the qualitative research approach. Relativism is a research paradigm in which reality is defined based on what an individual perceives to be real. The relativist believes that all forms of knowledge are purely a matter of perspective. Realism also holds the view that knowledge is socially created or stems out of social conditioning. The realists use both theoretical reasoning and experiments in their methodology to discover the knowledge of the real world. Critical realism, on the other hand, is the assumption that reality is a social construct that is continuously under the internal influence. Finally, positivism is based on the notion that there is a single truth, and hence, reality can be measured through scientific methods. The positivist focus on formulating and testing hypothesis developed through existing theories using quantitative data. They, therefore, adopt quantitative tools and techniques that are

useful for verifying the hypotheses they formulate. Hence, positivists employ deductive reasoning to advance theories that can be tested through observable social realities. The research paradigm underlying this study is positivism. This is because the study uses quantitative tools and techniques to test the relationship between isolated variables objectively.

3.3 Research Approach

This study adopts a quantitative research approach. This approach is suitable for analyzing a large amount of data. It is also convenient for reaching a generalized conclusion on a subject matter without compromising on accuracy (Yilmaz, 2013). The quantitative research approach allows for the measurement of different variables to establish and identify a relationship. This is in line with the objective of this study, which is to identify the relationship between earning persistence, earnings management, and stock returns. More so, this study employs the use of panel data to examine the relation between persistence, earnings management, and stock return for various firms in different countries. Thus analysing several variables at different times and locations.

3.4 Data Sources

This study employs the use of both macro and firm-level data. The data contains financial information of 39,490 listed firms across 45 countries from 1995 to 2013. The firms involved in the dataset are non-financial firms operating in the following sectors; technology, basic material, telecommunication, health care industries, among others. The firm level data is obtained from Data Stream. Included also in the data are macroeconomic information sourced from the World Development Indicator Database. The macro data contain information on inflation, GDP, interest rate among others (World Bank, 2019).

3.5 Variable Measurement

The variables under investigation in this study are earnings persistence, earnings management, and stock return. Persistence is measured using the price cost margin and return on assets. Earnings management is measured using discretionary accrual. Stock return is measured using the lognormal return of stock prices.

3.5.1 Earnings Management

Discretionary accrual has been used in most studies that seek to measure earnings management (Paiva & Lourenço, 2016; Fakhfakh & Nasfi, 2012; Chan et al., 2006). There are various models used to measure discretionary accruals. Prominent models include the Jones model, (Jones 1991), the modified Jones model by Dechow, Sloan and Sweeny (1995), Pae (2005) model etc. The Pae (2005) model is employed in this study. This model improves the Jones model by including lagged accruals and cash flow from operations, thereby enhancing the interpretative ability of the Jones Model (Paulo, Martins, & Girao, 2014; Pae, 2005). According to Pae's Model, Discretionary Accrual (DA) is defined as the difference between Total Accruals (TA) and Non-Discretionary Accruals (NDA). Thus:

$$DA_{it} = TA_{it} - NDA_{it} \quad (3.1)$$

Total Accruals, as defined in Equation (3.1), is subsequently calculated as:

$$TA_{it} = (DCA_{it} - DCash_{it}) - (DCL_{it} - DCD_{it}) - DEP_{it} \quad (3.2)$$

Where TA_{it} is the Total Accrual of firm i in year t . DCA_{it} represents the change in current assets while $DCash_{it}$ is a measure of the change in cash and cash equivalents. Conversely DCL_{it} captures

the change in current liabilities. More so, DCD_{it} represents the change in debt in current liabilities.

Finally, DEP_{it} is the measure of depreciation and amortization expense of the firm.

$$\frac{TA_{it}}{A_{it-1}} = \beta_0 \left(\frac{1}{A_{it-1}} \right) + \beta_1 \left(\frac{\Delta REV_{it}}{A_{it-1}} \right) + \beta_2 \left(\frac{PPE_{it}}{A_{it-1}} \right) + \beta_3 \left(\frac{CFO_{it}}{A_{it-1}} \right) + \beta_4 \left(\frac{CFO_{it-1}}{A_{it-1}} \right) + \beta_5 \left(\frac{TA_{it-1}}{A_{it-1}} \right) + \varepsilon_{it} \quad (3.3)$$

Where, the beginning balance of total assets is denoted as A_{it-1} , the change in revenue is $DREV_{it}$,

PPE_{it} is the gross property, plant, and equipment. CFO_{it} denotes current cash flow. CFO_{it-1} shows

the lagged cash flow and TA_{it-1} is the lagged total accrual. Regressing the values of equation 3.2

on equation 3.3 gives Non-Discretionary Accrual component.

3.5.2 Persistence

The stability, predictability, variability, and trend in earnings are known as persistence. Assessing the persistence in earnings is relevant in ascertaining earnings power and boosting the financial information users' confidence in firm performance. Profit persistence is regarded as a unique characteristic since it implies reported outcomes are recurring and stable over time (Dechow et al., 2010). Existing studies show that the persistence of earnings positively influence the perceived "quality of earnings" and therefore, the value relevance of earnings (Francis et al. 2004; Penman & Zhang, 2002; Lipe, 1986; Kormendi & Lipe, 1987; Lev, 1983). In other studies, the persistence of profit has been examined using cash flow and accrual component of earnings as proxies. (Leal et al., 2017; Heyrani, Arkadani, & Arkadani, 2013; Allen, Larson, & Sloan, 2013). In this study, different measures of persistence are employed, that is the Price Cost Margin (PCM) and the Return on Asset (ROA). PCM is defined as revenue minus cost relative to sales. ROA is defined as the ratio of operating profit to total assets of a firm. Both estimates of profit are used because of the anticipated problems of misstatement and earnings smoothing. As the study deals with

developed and developing economies, the ROA is used as a more reliable measure of tracking the persistence of profits. The Markov Chain model and the dynamic panel model are used to measure the extent and persistence of earnings respectively.

3.5.3 Asset Price/Stock Return

The return on a stock is the value obtained by investors from the stock market. This may be in the form of dividends paid by a firm or profits as a result of trading directly in equity. The return on stock is measured by taking the log of the current year stock price over the price of the previous year. This method considers the inter-temporal variation in stock returns. Therefore:

$$SR_{it} = \ln\left(\frac{SP_{it}}{SP_{it-1}}\right) \quad (3.4)$$

where SR_{it} is the stock return of the firm i in year t . SP_{it} , is the stock price of a firm i in year t and SP_{it-1} , is the stock price of firm i in year $t - 1$.

3.5.4 Control Variables

Macro and Micro level variables are included in the models to explain profit persistence and its subsequent influence on the stock return. These control variables include size, intangible asset, leverage, and liquidity at the firm level and, inflation, and general economic development at the macro level. *Size* is controlled for in ascertaining determinants of persistence. According to Amidu and Harvey (2016), size has a negative effect on profit persistence. Size equally affects earnings management as large firms are likely to manage earnings as compared to smaller firms. (Lobo & Zhou, 2006). Firm size is measured as the natural log of total asset at the end of the financial year. *Intangible asset* is also used to explain the variation in profit persistence. As explained by the

accounting standard, intangible asset includes copyrights, license, and patents, among others. In this study, intangible asset is measured as the ratio of intangible asset to total asset. *Leverage* has an effect on the capital structure of a firm. According to Stephan and Tsapin (2008), leverage has a negative relation to the profit of firms. This is measured as the ratio of debt to equity. *Liquidity* is also controlled for when establishing the relationship between persistence, earnings management, and stock returns. Liquidity is measured as the ratio of current asset to current liabilities. *Equity* is also controlled for in examining the determinants of profit persistence and its subsequent effect on stock returns. Equity is measured as the ratio of the firm's equity to the firm's total asset.

GDP Growth explains the potential influence of business cycles. According to Hamilton & Lin (1996), business cycles influences stock returns. GDP growth is included in the dynamic panel model to explain the determinants of persistence and variation in stock return. *Inflation* is the annual growth rate of the consumer price index. This is used to explain the relationship between persistence, earnings management, and stock return. *Interest Rate* is influential in predicting stock returns. However, literature has revealed different results on the influence of interest rate on stock prices. (Njindan, Iyke, & Ho, 2017). While some studies show that an increase in interest rate reduces stock prices, others are of the view that a decrease in the interest rate causes market participants to anticipate a further decrease in interest rate hence redrawing their investments in stocks.

3.6 Model Development and Estimation Strategy

Three different models are employed in this study. These are the Markov Chain analysis, quantile regression, and the dynamic panel regression.

3.6.1 The Extent and Mobility of Persistence

This study employs a Markov Chain analysis to examine the movement between classes of profit. It is characterized by formulating transitional probabilities between variables across various conditions and time. The Markov Chain model requires that if y_s^t is the rate of earnings of firm s

at time t , then, $P\{y_s^{t+1} = j \mid y_s^t = i\} = p_{ij}$ is valid for the sequence $\left\{ y_s^0, y_s^1, \dots \right\}$, a stochastic

process denoting that the likelihood p_{ij} of a random variable y being in a state j at any point in time depends on the state it has been at the point of time i . Thus, transition among profit classes can be explained as

$$F_y^{t+1} = P.F_y^t \quad (3.5)$$

Where F_y represents the profit distribution of the respective firms at time t and $t+1$. This method describes the probability that a firm switch from one state of profitability to the other. This method is useful as it provides information on persistence and the behaviour of firm's profits. On this basis, the technique requires that the data is grouped into five equal profit size ranging from least profitable, to the most profitable. Thus, the class one group is composed of the least profitable firms; class two group is composed of low profitable firms; class three group is composed of profitable firms; class four group is composed of high profitable firms; and class five group is composed of most profitable firms. The transition probability matrices are estimated using the sample of firms for yearly transition periods.

3.6.2 The Speed of Convergence

To investigate the speed of adjustment, a dynamic panel regression model is used for 39,490 firms in the 45 countries following the study of Amidu & Harvey (2016). The time series autoregressive models are commonly used for forecasting future values of an economic variable that contains information on their past values. The model of this study is:

$$\pi_{it,c} = \alpha_{ic} + \lambda_i \pi_{it,c-1} + u_{it,c} \quad (3.6)$$

Where $\pi_{it,c}$ is derived as:

$$\pi_{it,c} = p_{(it,c)} - \bar{p}_{(t,c)} \text{ and } \bar{p}_{(t,c)} = \sum_{i=1}^{\bar{n}} \frac{p_{it,c}}{n} \quad (3.7)$$

The average profit of firms in the individual country is denoted by $\bar{p}_{t,c}$. The normalized profit rate for country c in year t is $\pi_{it,c}$. The normalized profits of the countries are used in the model as constructed in the Equation 3.7 above to control for fluctuations in earnings. By regressing $\pi_{it,c-1}$ over $\pi_{it,c}$ the effects of lagged years profit rates over the current year's profit rates can be estimated (Amidu & Harvey, 2016). The value of λ_i is the speed of adjustment towards the mean profit of the country. If the value is close to 0, it suggests that the profit level in the previous period does not affect the profit level in the current period, and hence indicating the absence of profit persistence. However, if λ_i has a value close to 1, it means that there is a slow adjustment. The speed of adjustment is ascertained by incorporating the proxy for earnings management. In ascertaining the speed of adjustment, a two-stage GMM estimator is employed. This is used to estimate the value of λ_i , which is the speed of adjustment.

3.6.3 Evaluating the determinants of earnings persistence

The quantile regression is used to examine the determinants of profits persistence. This method is preferable to the ordinary least squared regression (OLS) as it defines the depth and variations in effects that the independent variables can have on the dependent variable by breaking the data into quantiles. It is also used to describe the distributions of the dependent variable on the independent variable (Koenker & Hallock, 2001). Unlike the Ordinary Least Square (OLS) that looks at the covariation existing between the mean of the dependent variable y and an independent variable x , the quantile regression model provides a more robust interpretation by predicting the covariation between the median of the dependent variable Y and an independent variable X (Koenker & Xiao, 2002).

The quantile regression model has been used in the studies of earnings persistence to measure the determinants of persistence among financial firms (Amidu & Harvey, 2016) and non-financial firms (Leal et al., 2017; Stephan & Tsapin, 2008). This regression model is preferable as it has a strong effect on outliers (Leal et al., 2017; Stephan & Tsapin, 2008) and avoids the assumption that the variation in the error term is fairly spread across the conditional distribution (Stephan & Tsapin, 2008). More so, this regression model is useful when a data set is skewed (Amidu & Harvey, 2016; Stephan & Tsapin, 2008). Following, Leal et al., (2017) and Koenker & Hallock (2001), the quantile regression is such that the quantile of an outcome variable Y with X as the linear function is of the form;

$$Q(Y|x) = x_i\beta(\tau) + \varepsilon_i \quad (3.8)$$

Where $\beta(\tau)$ is the vector of the parameter associated with the q th quantile? The value of $\beta(\tau)$

can be estimated by finding the $\hat{\mathcal{E}}(x, \hat{\beta}(\tau))$ that minimizes

$$\min_{\beta \in \mathbb{R}^p} \sum_{i=1}^n \rho_{\tau}(y_i - \mathcal{E}(x_i \beta)) \quad (3.9)$$

Were ($0 < \tau < 1$). The estimated coefficient i.e. $\hat{\beta}$, is interpreted as a marginal change in the dependent variable Y as a result of a marginal change in the particular independent variable X. The quantile coefficient can be statistically different from 0 or significantly different from OLS, showing differing effects along with the distribution of the dependent variable. The estimate of discretionary accrual, which is the measure of earnings management, is incorporated as an influential independent variable used to explain the marginal effect on profit.

3.6.4 The effect of earnings management and earnings persistence on stock returns among firms.

The study uses a dynamic panel model to explain the relationship between profit persistence, earnings management, and stock return. The model is expressed as:

$$SR_{it} = \alpha_1 SR_{(it-1)} + \alpha_2 EP_{it} + \alpha_3 EM_{it} + \alpha_4 (EP_{it} * EM_{it}) + \sum_{(j=8)}^k \alpha_j x_{ij} + \varepsilon_{it} \quad (3.10)$$

Where SR_{it} is the measure of stock return of a particular firm i at time t, EM_{it} is the measure of the earnings management of a firm i at time t, EP_{it} measures the earnings persistence of firm i at time t, $EP_{it} * EM_{it}$ is the interaction between persistence and earnings management and finally $\sum_{(j=8)}^k \alpha_j x_{ij}$ is the sum of k control variables.

The Generalised Method of Moment estimator (System GMM) is employed to examine this relationship. This is preferable to the ordinary least square (OLS) as it provides results that are robust to outliers. More so, the OLS provides bias to control for heterogeneity. System GMM also creates the opportunity to include time-invariant repressors.

3.7 Summary

This chapter discussed the methodology used to execute this study. It covered the research approach and design, the source of data, the model specification, and the measurement of the variables. Also, the empirical estimation techniques were stated.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF RESULTS

4.1 Introduction

This section presents the empirical results on the mobility and convergence of profits, the determinants of profit persistence and subsequently, the interactive effect of profit persistence and earnings management on stock returns. A Markov Chain analysis is used to examine the extent and mobility of profit persistence. Secondly, a dynamic panel regression is used to compute the speed of convergence as a robust check on the Markov estimation while the quantile regression is used to examine the determinants of profit persistence. Finally, the system GMM is used to examine the interactive effect of profit persistence and earnings management on stock returns. The study also examines the persistence in profit across the eight industries namely, basic material, oil and gas, healthcare, consumer goods, consumer services, technology, industrials and telecommunication. Subsequently, the various countries are categorized into continents to examine the persistence in profits across the continents. This approach enables the researcher to analyse profit persistence across the various continents. The study groups the data into five regions, namely, Latin America, North America, Europe, Afro-Asia, and Australia.

4.2 Descriptive Statistics

Table 4.1 and 4.2 present the firm-specific variables which are averaged by the firm from 1995 to 2013 for each country. Included in the data are country-level variables; these are averaged by the countries over the 18 year period. The summary statistics on the country-specific averages are reported in table 4.3. From table 4.1, there are variations in the stock returns with Latin American recording the highest average stock returns of 8.8% and firms in North America recording the

lowest average stock returns of -12%. The implication of this to investment is that investors are likely to earn close to 9% on a dollar investment on stocks in Latin American Firms. However, investors are likely to make losses up to 12% on their investment in stocks in North America.

Table 4.1: Summary Statistics on Firm-Specific Variables

Table 4.1 presents average values on some firm-specific variable. The sample consists of 39490 firms across 45 countries during the period 1995 – 2013. *Stock return (SR)* is the log return on firms' stock prices. *Earnings Management (EM)* is the average discretionary accruals. *Return on Asset (ROA)* is the ratio of earnings before interest and tax to total asset, Price Cost Margin (PCM) is the ratio of sales less cost of goods sold to sales.

Countries	Stock Return	Earnings Management	ROA	PCM
Latin America				
Argentina	0.105	-0.389	0.070	0.329
Brazil	0.099	-1.99	-13.949	0.334
Chile	0.049	-0.254	0.017	0.306
Colombia	0.115	-0.258	0.072	0.351
Mexico	0.054	-0.309	0.076	0.378
Peru	0.104	-0.383	0.111	0.368
Average	0.088	-0.597	-2.267	0.344
Australia				
Australia	-0.088	0.124	0.490	-8.383
New Zealand	-0.019	0.2	-0.088	0.106
Average	-0.054	0.162	0.201	-4.139
Europe				
Austria	0	-0.378	0.010	0.171
Belgium	-0.047	-0.275	0.118	0.168
Czech Republic	-0.011	-0.401	0.053	0.119
Denmark	-0.046	-0.224	-0.063	0.043
Finland	-0.029	-0.289	0.067	0.302
France	-0.049	-0.083	0.044	-0.412
Germany	-0.071	-0.238	-0.064	-0.141
Greece	-0.13	-0.197	-0.060	0.293
Hungary	-0.081	-0.32	0.052	0.256
Ireland	-0.073	-0.464	-0.019	0.337
Italy	-0.108	-0.24	0.034	0.448
Netherlands	-0.059	-0.297	0.021	0.272
Norway	-0.109	-0.605	-0.074	-2.114
Poland	-0.047	-0.191	0.083	-0.070
Portugal	-0.079	-0.345	0.042	0.145
Russia	0.052	-0.328	0.108	0.359
Spain	-0.042	-0.254	0.056	0.230
Sweden	-0.111	-0.137	-0.149	-2.636
Switzerland	-0.012	-0.274	0.027	-0.017
Turkey	0.134	-0.211	0.095	0.279
United Kingdom	-0.104	-0.193	-0.216	0.135
Average	-0.049	-0.283	0.014	-0.124
Afro-Asia				
China	0.033	0.249	1.188	0.377

Hong Kong	-0.042	-2.372	-0.212	0.260
India	0.011	0.681	0.076	-0.406
Indonesia	0.092	-0.335	0.025	0.283
Israel	-0.051	-1.303	-11.197	0.232
Japan	-0.056	-0.212	0.030	0.296
Malaysia	-0.041	-0.059	0.231	0.194
Pakistan	0.106	6.554	0.093	0.168
Philippines	0.08	0.151	-1.457	-0.790
Singapore	-0.047	-0.077	0.141	0.082
South Africa	-0.025	-0.17	2.135	0.278
South Korea	-0.002	-0.228	0.024	0.233
Taiwan	-0.026	-0.243	0.044	0.262
Thailand	0.089	-0.187	0.387	0.283
Average	0.009	0.175	-0.683	0.113
North America				
Canada	-0.113	-0.113	-1.002	-2.094
United States	-0.106	-0.373	-5.076	-1.025
Average	-0.12	-0.243	-3.039	-1.560

More so, on earnings management, firms in Afro Asia record the highest average of 0.175. This implies that these firms manage earnings upwards for at least one of the following reasons, to probably signal efficiency in firm performance, to influence the contractual outcome or provide huge compensation for managers. Meanwhile, firms in Latin America record the least average discretionary accrual of -0.597. Managers in these firms could be making decisions to push earnings downward as a means of avoiding tax.

Return on Asset and Price Cost Margin are the firm-specific variables used to measure profit persistence. For return on asset, firms in Australia record the highest of about 20% average, while those in North America recorded an average of -3.04. This implies that firms in Australia earn close to 20% on any dollar investment made on their total assets. However, firms in North America incur losses on any dollar investment made on total assets. With Price Cost Margin, Latin America records the highest Price Cost Margin with an average of 34% while Australia records the lowest

Price Cost Margin of about -4.14 on average. Thus, firms in Latin America generate about 34% income on any dollar sale while firms in Australia make losses of about -4.14 on any dollar sale.

Table 4.2: Summary Statistics on Firm-Specific Variables

Table 4.2 presents the average values of some selected variables. The sample consists of 39490 firms across 45 countries during the period 1995 – 2013. *Size* is the average of the firm's total assets in US dollars; Leverage (*LEV*) is the firm's ratio of debt to equity. Liquidity is the firm's current asset to current liability ratio. Equity is the firm's total equity to asset ratio. Intangible Asset (IA) is the ratio of intangible asset to total asset.

COUNTRY	Size (\$'000)	Leverage	LIQUIDITY	EQUITY	INTANGIBLE ASSET
Latin America					
Argentina	766,297.50	0.720	0.499	2.538	0.029
Brazil	2,182,061.00	0.566	-10.276	1.727	0.044
Chile	829,262.60	0.686	0.493	6.717	0.044
Colombia	1,332,087.00	0.187	0.681	2.005	0.042
Mexico	2,264,424.00	0.528	0.459	2.001	0.086
Peru	317,846.30	0.391	0.562	2.345	0.052
Average	1,281,996.40	0.513	-1.264	2.889	0.049
Australia					
Australia	401,155.50	0.393	-0.799	10.713	0.125
New Zealand	367,015.00	0.454	0.298	2.661	0.135
Average	384,085.25	0.424	-0.250	6.687	0.130
Europe					
Austria	401,155.50	-3.334	0.332	2.238	0.078
Belgium	27,798.46	0.182	0.423	2.376	0.140
Czech Rep.	569,426.30	0.335	0.545	6.823	0.030
Denmark	906,783.90	0.345	-0.125	2.498	0.103
Finland	137,336.10	0.625	0.446	1.857	0.139
France	228,444.40	0.469	-5.276	1.911	0.156
Germany	820,946.90	1.483	0.251	4.169	0.125
Greece	467.56	0.388	-1.951	2.009	0.043
Hungary	762,637.80	0.230	0.549	3.608	0.073
Ireland	545,963.00	1.413	0.444	2.077	0.161
Italy	1,334.52	0.637	0.338	1.639	0.159
Netherlands	863,611.80	0.592	-0.908	1.776	0.133
Norway	1,154,062.00	0.848	0.083	3.450	0.127
Poland	271,539.60	0.284	0.455	2.581	0.077
Portugal	2,189.10	1.152	0.313	2.539	0.137
Russia	6,514,160.00	0.623	0.482	191.077	0.035
Spain	7,918.16	0.636	0.393	1.508	0.117
Sweden	799,726.80	0.414	0.469	2.820	0.228
Switzerland	2,515,168.00	0.431	0.482	2.451	0.107
Turkey	642,404.50	0.223	0.431	2.614	0.035
United Kingdom	1,579,143.00	0.512	0.180	3.442	0.182
Average	892,962.73	0.404	-0.152	13.164	0.115
Afro-Asia					
China	877,875.10	0.174	0.447	2.251	0.049
Hong Kong	1,420,932.00	0.364	-59.816	3.008	0.063
India	373,989.90	0.652	0.305	6.834	0.027

Indonesia	396,516.60	2.639	0.319	3.577	0.018
Israel	617,375.70	0.872	-9.183	15.036	0.058
Japan	1,598,391.00	0.538	0.456	2.163	0.020
Malaysia	296,803.10	0.295	0.221	3.047	0.048
Pakistan	160,038.00	1.84	0.326	1.430	0.009
Philippines	484,762.20	1.289	-6.651	14.850	0.050
Singapore	13,800,000.00	0.232	0.268	2.494	0.030
South Africa	645,615.00	0.609	0.156	3.035	0.099
South Korea	925,967.50	0.534	0.483	2.588	0.035
Taiwan	-	0.198	0.563	2.673	0.014
Thailand	340,628.50	2.451	-0.227	2.350	0.024
Average	1,687,607.28	0.906	-5.547	4.845	0.040
North America					
Canada	491,653.60	0.163	-2.164	8.139	0.074
United States	2,330,297.00	0.725	-6.451	4.765	0.163
Average	1,410,975.30	0.444	-4.308	6.452	0.119

Size, leverage, equity, liquidity, and Intangible asset are also included in this study as control variables. In prior studies, these variables are used to measure performance. Size is measured as the average of the firm's total asset in US dollars. From table 4.2, firms in Afro Asia record the largest total asset with an average of 1,687,607.28 thousand US dollars. Concerning leverage, the table shows that Afro-Asian firms are more highly geared than firms in other regions, having an average debt to equity ratio of approximately 90%, indicating that, firms in Afro Asia have less than 10% of their investments in equity instruments. On the other hand, firms in Europe record, the lowest gearing ratio of 40%, implying that about 60% of their total assets are financed by equity. The economic implication of this is that firms in Europe depend more on equity capital as a means of finance. With regard to equity, Europe records the largest equity, with an average of about 13.16. On the other hand, Latin America records the lowest equity of 2.9. Thus, shares in Europe contribute more to total assets than any other shares across the five regions while shares in Latin America contribute relatively less to total assets than other shares across the various groups. Meanwhile, firms in these data have a negative liquidity position. This means that as current obligation rises, there is a less liquid asset to cater for present obligations. Europe records the

lowest negative liquidity position of about -0.152 while Afro Asia records the highest negative liquidity of about -5.547. Australia records the highest intangible asset of about 13% while Afro Asia records the lowest intangible asset of about 4%. This implies that firms operating in Australia invest in patents and copyrights more than other firms in other regions while firms in Afro Asia invest less in patents and copyrights.

Table 4.3: Summary Statistics on Country Specific Variables.

Table 4.3 presents the average values of some country-specific variables. These are presented for all the 45 countries from 1995 to 2013. Interest rate (IR), Inflation, is the annual consumer price index, GDP growth (GDP) is the annual economic growth rate.

COUNTRY	Interest Rate	Inflation	GDP growth
Latin America			
Argentina	2.474		3.484
Brazil	42.465	8.160	3.080
Chile	5.123	2.372	4.176
Colombia	9.123	6.973	3.953
Mexico	3.777	8.924	2.542
Peru	19.373	3.256	5.415
Average	13.723	5.937	3.775
Australia			
Australia	3.783	2.836	3.090
New Zealand	4.447	2.398	2.605
Average	4.115	2.617	2.848
Europe			
Austria	3.949	0.760	1.630
Belgium	6.256	2.008	1.868
Czech Rep.	3.940	4.880	2.494
Denmark	5.963	2.123	1.415
Finland	2.910	1.692	2.523
France	5.102	1.560	1.723
Germany	5.980	1.522	1.338
Greece	7.292	3.407	1.200
Hungary	4.586	7.904	1.982
Ireland	2.243	2.550	5.000
Italy	4.155	2.315	0.571
Netherlands	2.106	2.140	2.297
Norway	2.125	1.984	2.087
Poland	7.810	3.693	3.938
Portugal	5.632	2.624	1.706
Russia	-1.409	11.313	3.961

Spain	4.588	2.759	2.225
Sweden	4.060	1.275	2.284
Switzerland	2.909	0.716	1.917
Turkey	0.000	22.668	4.324
United Kingdom	1.422	2.242	0.896
Average	3.887	3.911	2.256
Afro-Asia			
China	1.890	2.473	9.621
Hong Kong	5.730	1.771	3.806
India	4.282	8.352	7.157
Indonesia	3.588	9.249	4.927
Israel	4.316	2.594	4.238
Japan	2.898	-0.099	0.846
Malaysia	2.438	2.387	5.016
Pakistan	0.000	9.755	3.822
Philippines	4.297	4.784	4.778
Singapore	4.420	2.152	5.795
South Africa	5.863	6.098	3.153
South Korea	4.264	3.016	4.253
Taiwan	0.000	0.000	0.000
Thailand	4.342	3.065	3.686
Average	3.452	3.971	4.364
North America			
Canada	2.058	1.889	2.119
United States	3.527	2.369	2.209
Average	2.793	2.129	2.164

The average values of the country-specific variables are presented in table 4.3. These variables account for the macroeconomic characteristics of the various countries in all the 5 regions. These variables are inflation, GDP growth, and Interest rate. Countries in Latin America record the highest interest rate of 13.723% while's firms in North America record the lowest interest rate. Thus, for the whole 18 years, the cost of borrowing was very high in Latin America and was at its lowest in North America. Similarly, annual average prices in Latin America regions increased by 5.937% while that of North America increased at 2.129%. Finally, Afro-Asian countries show the highest average annual growth in GDP at 4.364, and North America record

the least GDP at 2.164. An indication of an increase in business opportunity and microeconomic development in Afro Asia and less development opportunities in the other regions

Table 4.4 Pairwise Correlation Matrix

Table 4.4 presents inferential statistics between some selected variables. The sample consists of 39490 firms across 45 countries during the period 1995 – 2013. *Stock return (SR)* is the log return on firms' stock prices. *Price Cost Margin (PCM)* is the ratio of sales less cost of goods sold to sales, *Earnings management (EM)* is the average discretionary accruals. *Size* is the natural log of the firm's total assets. *Equity (EQTY)* is the firm's total equity to total asset ratio. *Liquidity (LQDTY)* is the firm's current asset to current liability ratio, *Leverage (LEV)* is a firm's ratio of debt to equity. *INTANGIBLE ASSET(IA)* is the ratio of intangible asset to total asset, *Interest rate (IR)*, *Inflation (INFLTN)*, is the annual consumer price index, *GDP growth (GDP)* is the annual growth rate of Gross Domestic Product are measured in percentages. * indicates a significance level of 5% or more.

Variables	SR	PCM	EM	SIZE	EQTY	LQDTY	LEV	IA	IR	INFLTN	GDP
SR	1.000										
PCM	0.016*	1.000									
EM	-0.005*	-0.000	1.000								
SIZE	0.123*	0.021*	-0.002	1.000							
EQTY	0.001	0.000	0.155*	0.010*	1.000						
LQDTY	0.005*	-0.000	0.001	-0.010*	0.000	1.000					
LEV	0.000	0.000	0.000	0.001	0.000	-0.000	1.000				
IA	-0.037*	0.001	-0.005*	-0.145*	-0.002	-0.007*	0.001	1.000			
IR	0.004	0.001	-0.002	-0.000	-0.000	-0.007*	0.000	-0.051*	1.000		
INFLTN	0.033*	0.001	0.001	-0.001	-0.000	0.008*	0.000	-0.034*	0.052*	1.000	
GDP	0.182*	0.005*	0.001	0.062*	0.001	-0.002	0.001	-0.108*	-0.026*	0.178*	1.000

Table 4.4 presents the inferential statistics on the coefficients on which an examination is made on Stock Returns. The results from the pairwise correlation shows that a positive linear correlation exists between profit and stock market returns. This means that, as profit increases, the level of returns generated on stock will also increase. A negative correlation however, exists between stock return and earnings management. This implies that a firm does not receive any reward in stock returns when they manage their earnings. This could be that investors can perceive that earnings are being managed and react accordingly. More so, size and liquidity have a positive correlation with stock returns. This means that, as firms expand their stock returns increases. Also, as the volatility in cash flows reduces, stock returns increases. Inflation and GDP equally show a positive correlation with stock returns. This means that as inflation and economic development increases, countries in the various markets generate higher returns on their investment.

Concerning profit (PCM), the results suggest a positive correlation to stock returns. Thus, as firms expand their scope of operation, their profit also increases. Also, countries that record high economic growth are likely to make more profits as a positive correlation exists between GDP and profit. The results on Earnings management suggest that equity is positively correlated to earnings management. This implies that firms are likely to manage their earnings as their level of equity increases. However, intangible asset has a negative correlation with earnings management. Thus, suggesting that earnings management reduces when firms invest more in patents and copyrights.

4.4 Empirical Results

This section presents the empirical results of the study in four parts. The first part examines the extent and mobility of profit persistence and provides first-hand evidence on the convergence of

the profits of firms. The second part then computes the speed of convergence of earnings as additional evidence on the previous results. The results obtained, in the first and second parts are then used to examine the determinants of profit persistence. The fourth and final part then examine the interactive effect of profit persistence and earnings management on stock returns.

4.4.1 The Extent and Mobility of Profit Persistence

To measure the extent and mobility of persistence, a discrete Markov Chain analysis is used. The Markov Chain analysis allows for the estimation of a transition probability matrix that is useful for ascertaining the persistence of profit among these non-financial firms across the 45 countries. The technique is used to ascertain the probability that a firm will switch from one profit class to the other. The Markov process requires the grouping of the data into profit classes using the percentile approach or by discretion (Crefis 2003). The structure of the data is then grouped into five equal profit classes such that, group 1 represent the least profitable firms, group 2 represents the low profitable firms, group 3 is the profitable firm, group 4 is the high profitable firm and group 5 is the most profitable firm. The grouping is done using the percentile approach. Firms with profits below the 20th percentile fall under the first class, i.e., least profitable group, those with a profit between the 20th and the 40th percentile fall under the low profitable group, while firms with profits between the 40th and the 60th percentile are defined as the profitable group. More so, firms with profit between the 60th and the 80th percentile are in the high profitable group, and finally, firms with profit above the 80th percentile are the high profitable firms. A transition probability matrix is then estimated for all the 39,240 firms in the 45 countries for each transitional financial year and the overall financial year. Horizontally, the transition probability matrix shows how firms switch from one profit class to the other, while vertically, the matrix shows the

percentage of firms that maintain their profit position.

Table 4.5 Transition Probability Matrices: Output for PCM for 1995-2013

Table 4.5 presents the results of the transition probability matrices using Price Cost Margin (PCM). The firms are grouped into five equal sizes such that (1) least profitable firms; (2) low profitable firms; (3) profitable, (4) highly profitable, (5) the most profitable firm. P_i is the initial probability, and P_j is the destination probability.

	(1)	(2)	(3)	(4)	(5)	P_i
(1)	77.93	13.96	3.23	2.21	2.66	100
(2)	15.04	67.22	14.11	2.42	1.21	100
(3)	2.87	15.74	67.18	12.48	1.74	100
(4)	1.78	2.29	13.59	72.5	9.85	100
(5)	2.1	0.98	1.62	10.16	85.14	100
P_j	19.64	20.2	20.22	20.15	19.79	100

Table 4.5 shows the transitional probability matrix for PCM. For firms in the first profit class, about 78% of firms in the first class remain, implying that close to 22% of these firms transition. Out of the percentage that transition forth, 13.96% maintain their position in the second class as 8.11% move to the next class. In the third profit class, only 3.23% remain as 4.88% move on to subsequent profit groups. Out of the 4.88%, 2.21% remain in the fourth class, and the rest (i.e., 2.66%) move and finally settle in the fifth profit class. For firms in the second profit class, only 15.04% remain in the first class as the other 84.96% move. Out of the percentage that transition on, 67.22% maintain their position in the second class as 17.74% move to the next class. For the firms that transition on, only 14.11% remain in the third class and 3.63% move on to subsequent profit groups. Out of the 3.63%, 2.42% remain in the fourth class, and 1.21% move and finally settle in the fifth profit class. For firms in the third profit class, only 2.87% remain, and 97.23% move. Out of the 97.23%, 15.74% and 67.18% remain in the second class and third class respectively. About 14.22% move on, 12.48% of them settle in the fourth class and only 1.74% proceed and remain in the final class. For firms in the fourth profit class, 1.78% remain in the first class, and the rest move on. 2.29% remain in the second class as the rest transition to the subsequent

profit classes. For firms in the fifth profit class, it is only 2.10% of these firms that remain in the first class. 0.98% and 1.62% proceed to the second and third class, respectively. Out of the 95.3% that move on, 10.16% settle in the fourth class and 85.14% finally maintain their position in the fifth class. On the whole, about 20% of these firms maintain their positions in their profit classes.

Table 4.6 Transition Probability Matrices: Output for ROA for 1995-2013

Table 4.6 presents the results of the transition probability matrices using Return on Asset (ROA). The firms are grouped into five equal sizes such that (1) least profitable firms; (2) low profitable firms; (3) profitable, (4) highly profitable, (5) the most profitable firm. P_i is the initial probability, and P_j is the destination probability.

	1	2	3	4	5	P_i
1	70.26	15.78	5.23	3.56	5.18	100
2	17.5	50.08	21.26	7.37	3.78	100
3	5.8	22.89	46.6	19.82	4.89	100
4	3.62	9.07	22.1	48.42	16.77	100
5	3.96	4.68	6.61	20.07	64.68	100
P_j	19.65	20.4	20.46	20.1	19.39	100

Table 4.6 presents results on the transition probability matrix for ROA. From the table, it is observed that only 70.26% of the firms in the first profit class remain, the rest of these firms transition on. For the firms in the second profit class, about 50.08% remain in that class. For the firms in the third profit class, only 46.6% remain. For the fourth class, 48.42% of these firms maintain their position as the most profitable firms. For the firms in the fifth class, only 64.68% remain in the highly profitable category. Overall, 19.65% of the firms in the first class remain, 20.4% of these firms also settle in the second class as 20.46, 20.1 and 19.39% remain in the third, fourth and fifth class respectively.

The Markov technique requires that, for strong persistence, the elements on the diagonal of the transition probability matrix should have values close to 1. The results show strong persistence as

the elements on the diagonal are above 0.5. For Price Cost Margin (PCM), the strong persistence cuts across all levels of profit classes with firms in the fourth and fifth class recording stronger persistence in profits. However, for Return on Assets, strong persistence drops from the third to the fourth class with the least profitable firms having stronger persistence. On average, it takes 6.5 years for Price Cost Margin (PCM) and 4.5 years for Return on Asset (ROA) to converge. Thus, the results show a relatively high level of persistence over the 18 transitional year period. The results on the transition probability matrix for each year are presented in Appendix 1.

4.4.2 The Speed of Convergence

To measure the speed of convergence and to provide further evidence on the persistence of earnings among the 39,420 firms, a dynamic auto regression model is employed. This model is used to estimate λ_i , which is the speed of adjustment. If λ_i has a value close to 0, it indicates that the level of profits in the previous period has no effect on the level of profit in the current period and thus there is the absence of profit persistence. However, if λ_i has a value close to 1, it suggests that there is slow convergence, in that there is the presence of high persistence and thus previous profits have a persistent effect on current year's profit. Table 4.7, 4.8, 4.9, and 4.10 present the persistence output for both Price Cost Margin (PCM) and Return on Assets (ROA). The first column shows results of the persistence of Price Cost Margin while the second column relates to ROA. The diagnostic tests reported are (1) the instrument count, (2) number of groups, (3) number of observations, (4) the Arellano-Bond (AB2) test for first and second order autocorrelation in the residuals, (5) the Hansen test for over identifying restrictions, and (6) the F-test to show the joint significance of instruments. The Hansen test provides evidence on the over-identification and validity of instruments used in the model. The Arellano-Bond test provides evidence on second

order auto correlation. For the model to be robust, the Hansen and Arellano-Bond should not be significant. The F-test shows the joint explanatory power of the regressors to the dependent variable.

Table 4.7: The Speed of Convergence in Profits

Table 4.7 presents the results for the time of convergence using a dynamic two-step system GMM, Windmeijer-corrected standard error, small sample adjustment, and orthogonal deviation. The dependent variables are Return on Asset (ROA) and Price Cost Margin (PCM). PCM Lag and ROA Lag are the first lags of the dependent variables. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	PCM	ROA
PCM lag	0.5270*** (0.1802)	
ROA lag		0.3887*** (0.0982)
Constant	0.0780 (0.0934)	0.1946 (0.2454)
Observations	347,304	372,357
No. of groups	36,708	39,242
No. of instruments.	13	11
AB2	1.58	1.100
P-value	0.113	0.271
Hansen's Test	11.51	12.87
P-value	0.402	0.168
F-test	8.55	15.66
P-value	0.0032	0.0000

The results recorded slightly differ from the Markov output. The implied time of convergence for Price Cost Margin is 5 years, while that of ROA is close to 4 years. This implies that there is a relatively low speed of adjustment and moderate level of persistence in the profit of these firms. This outcome agrees with the results obtained on emerging markets by (Stephan & Tsapin 2008; Amidu & Harvey 2016).

More so, the study, tests the variation in the persistence of profits across the eight industries included in the data and the length of time that it takes for the profit of firms to converge to their industry averages. Table 4.8 records the results of the persistence in profits across the various industries. The results show that the coefficient of the lag of profit (i.e ROA and PCM) is positive and significant across all industries. This indicates that across the various industries, past profit successively affects current profit and thus profits are persistent.

The results for PCM shows that, firms in the industrials record the strongest persistent with a coefficient of 0.933. This means that it takes close to 9½ years for profit to converge for firms in the industrials. Technology then follows with an estimate of 0.851, implying the presence of strong persistence. The health care industry also records strong profit persistence with a coefficient of 0.830. Basic material and oil and gas then follows with a coefficient of 0.762 and 0.721 respectively. This means that it takes close to 7½ years for profit to normalize in these industries. Also, consumer services then follow with a strong persistent estimate of 0.598. This indicates that it takes close to 6 years for profit to normalize in the consumer services industry. Finally, the telecommunication industry records a relatively low level of persistence with a coefficient of 0.207. This means that it takes 2years for profit to converge.

The results for ROA also reveals that, industrials record the strongest profit persistence of 0.984. This implies that it takes about 9½ years for profit of firms in the industrials to converge. Health care then follow with a persistent coefficient of 0.839. The coefficient indicates that it takes about 8½ years for profit of firms in these industries to normalize.

Table 4.8: Profit persistence across industries

Table 4.8 Presents the two-step system GMM regression result of the profit persistence across the 8 industries in the data, Windmeijer-corrected standard error, small sample adjustment and orthogonal deviation. All regressions are conducted using dynamic panel data estimation. The dependent variables are Price Cost Margin (PCM) and Return on Asset (ROA). PCM Lag and ROA Lag are the first lag of the dependent variable included as regressors. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	Dependent Variable: PCM							
	Basic material	Consumer Goods	Consumer Services	Health Care	Industrials	Oil & Gas	Tech-nology	Telecom-unication
PCM lag	0.762*** (0.168)	0.621*** (0.210)	0.598*** (0.198)	0.830*** (0.0523)	0.933** (0.370)	0.721*** (0.266)	0.851*** (0.283)	0.207* (0.114)
Constant	0.186 (0.118)	0.0278 (0.0236)	0.0665** (0.0269)	0.207 (0.217)	0.0296 (0.0578)	-0.009 (0.134)	0.579*** (0.205)	0.0466*** (0.0116)
Observations	42,961	65,588	48,190	23,262	103,243	15,187	44,399	4,341
Number of groups	4,791	6,579	5,102	2,623	10,306	1,986	4,839	480
No. of instruments.	4	5	5	5	5	4	4	5
AB2	1.414	1.412	1.184	1.161	1.392	1.238	1.389	1.045
P-value	0.157	0.158	0.236	0.246	0.164	0.216	0.165	0.296
Hansen's Test	1.954	5.279	2.392	3.900	2.016	0.275	3.309	2.677
P-value	0.376	0.152	0.495	0.273	0.569	0.872	0.191	0.444
F-test	20.52	8.733	9.156	251.8	6.363	7.354	9.058	3.317
P-value	0.000	0.003	0.002	0.000	0.012	0.007	0.003	0.07
VARIABLES	Dependent Variable: ROA							
	Basic material	Consumer Goods	Consumer Services	Health Care	Industrials	Oil & Gas	Tech-nology	Telecom-unication
ROA lag	0.579*** (0.00137)	0.325*** (0.0853)	0.752*** (0.275)	0.839* (0.429)	0.984*** (0.0679)	0.522* (0.291)	0.571*** (0.156)	0.606*** (0.0805)
Constant	0.487*** (0.0436)	0.0396 (0.0448)	-0.0184 (0.472)	0.348 (0.327)	-0.0305* (0.0156)	2.700** (1.187)	-0.124 (0.276)	-0.454 (0.864)
Observations	54,325	67,889	50,467	26,052	106,466	17,879	44,739	4,540
Number of groups	6,176	6,712	5,308	2,854	10,535	2,208	4,946	503
Number of instruments.	5	4	4	11	4	5	4	4
AB2	1.163	1.365	0.904	1.559	1.556	0.476	1.054	1.064
P-value	0.245	0.172	0.366	0.119	0.120	0.634	0.292	0.287
Hansen's Test	2.168	0.961	1.600	11.24	0.543	3.914	1.531	2.882
P-value	0.538	0.619	0.449	0.260	0.762	0.271	0.465	0.237
F-test	178221	14.52	7.497	3.823	210.3	3.227	13.49	56.62
P-value	0.000	0.000	0.006	0.051	0.000	0.073	0.000	0.000

The consumer services industry then follows with a persistent estimate of 0.752. An indication that it takes about 7 years for profit to converge for firms in the consumer services industry. Telecommunication then follows with a strong profit persistence coefficient of 0.606. An implication that it takes close to 6 years for profit of the individual firms to normalize in this industry. Basic Material Technology and oil and Gas industry then follows with a coefficient of 0.579, 0.571 and 0.522, indicating a relatively moderate level of profit persistence. Finally, firms in the consumer goods industries record the least profit persistence with a coefficient of 0.325. This implies the presence of a relatively moderate level of profit persistence as it takes close to 3½ years for profit to converge in the telecommunication industry.

This study then proceeds to examine the difference in persistence between the different regions to substantiate the results on the Markov. The persistence in the profit for the different regions are examined for both Price Cost Margin and Return on Asset using a two-step system generalized method of moments. From table 4.9, the coefficient of the lag of Price Cost Margin and Return on Asset is positive and significant across all regions. This indicates that across the various regions, profits are persistent. For PCM, Australia has the strongest profit persistence with a coefficient lag of 0.590, and this means that it takes almost 6 years for the profits of firms in Australia to normalize to their country's average or to persist. Latin America follows Australia with a coefficient of 0.579, North America also follows, recording a coefficient of 0.578, implying that it will take close to 6 years for their profit to converge. Europe then follows with a coefficient of 0.543. This means that it will take about 5½ years for their profits to adjust. Finally, Afro Asia shows weak persistence with a speed of adjustment of 0.11, meaning that it will take a year for profit to converge.

Table 4.9: Regional Profit Persistence

Table 4.9 presents the two-step system GMM regression result, Windmeijer-corrected standard error, small sample adjustment and orthogonal deviation. All regressions are conducted using dynamic panel data estimation. The dependent variables are Price Cost Margin (PCM) and Return on Asset (ROA). PCM Lag and ROA Lag are the first lag of the dependent variable included as regressors. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

Variables	Dependent Variable: PCM				
	Latin America	Australia	Europe	Afro-Asia	North America
PCM Lag	0.5789*** (0.1611)	0.5896*** (0.201)	0.5430*** (0.1005)	0.1097*** (0.0276)	0.5784*** (0.1821)
Constant	0.0014 (0.0014)	0.8946** (0.3624)	0.07343*** (0.0232)	0.0228* (0.0126)	0.0520 (0.2174)
Observations	9,030	15,358	67,132	161,271	64,805
No. of groups	926	2,047	7,814	15,979	7,173
No. of instruments.	5	5	5	5	4
AB2	0.691	1.298	1.419	0.211	1.163
P value	0.490	0.194	0.156	0.833	0.245
Hansen's Test	1.993	1.195	2.289	1.470	1.391
P value	0.574	0.754	0.515	0.689	0.499
F-test	12.92	8.611	29.19	15.78	10.09
P value	0.000	0.003	0.0000	0.0000	0.001
Variables	Dependent Variable: ROA				
	Latin America	Australia	Europe	Afro-Asia	North America
ROA Lag	0.8348*** (0.0731)	0.9274*** (0.3576)	0.5748** (0.2606)	0.7397*** (0.1885)	0.4448*** (0.1565)
Constant	3.5439*** (1.3494)	-0.6173*** (0.1711)	-0.0032 (0.0132)	-0.0152 (0.0589)	-0.1928 (0.2684)
Observations	9,748	17,336	84,200	183,661	77,412
No. of groups	962	2,153	9,017	18,266	8,844
No. of instruments	4	6	4	5	5
AB2	-1.541	1.586	1.102	0.839	0.493
P value	0.123	0.113	0.270	0.402	0.622
Hansen's Test	2.628	5.598	1.580	2.209	3.433
P value	0.269	0.231	0.454	0.530	0.330
F-test	130.6	6.725	4.866	15.41	8.078
P value	0.0000	0.010	0.0270	0.0000	0.0045

For ROA, the results on the speed of adjustment shows strong persistence for Australia, followed by Latin America, Afro Asia, and Europe in that order. The speed of adjustment in ROA for these continents is 0.927, 0.837, 0.740, and 0.575, respectively. However, North America records moderate persistence with a lag coefficient of 0.445. The outcome on the speed of adjustment for ROA implies that it takes about 9 years for the profits of firms in Australia to converge, about 8

years for that of Latin America to converge, close to 7½ years for firms located in Afro Asia to experience adjustment in their profit rates and almost 6 years for firms in Europe.

The persistence in earnings is tested by incorporating both firm specific and country variables using two-step system GMM. This model is preferable as it helps deal with issues of autocorrelation to the standard errors. It is more robust to the one step GMM as it uses the residuals from the one step for its estimations. Table 4.10 shows the results of profit persistence when other factors are included. The coefficient of the estimated λ_i is 0.0397 and 0.3830 for Price Cost Margin and Return on Asset, respectively, and these are all positive and significant at 1%. The estimate of the profit lags implies that the speed of adjustment reduces further when other factors are included to examine the persistence of profits. This slow speed of adjustment is influenced by the effect of equity, leverage, intangible asset, interest rate and GDP growth.

The results on PCM show that intangible asset, Interest rate and GDP growth have a negative but significant effect on the persistence of profit. However leverage records a positive significant effect on profit persistence. For the persistence in ROA, equity, and growth in GDP record a positive and significant effect. Amidu & Harvey (2016) record a similar result when investigating the persistence of banks' profits in Africa. Pervan et al. (2015) also record a positive effect between GDP and profit persistence when investigating the persistence of the bank's profits in Croatia. The results also show that the effect of earnings management on the persistence of profit is, however, not significant.

Table 4.10: Profit Persistence.

The dependent variables are the Price Cost Margin and the Return on Asset. PCM lag and ROA lag are the first lags of price cost margin and return on asset, respectively. Earnings management (EM) is measured by discretionary accrual. Size is measured by the natural log of total asset. The ratio of Intangible asset to total asset is the proxy for intangible asset. Leverage is measured as the ratio of debt to equity. Liquidity is measured as the ratio of current asset to current liabilities. GDP growth accounts for the difference in the economic growth rate across countries. Inflation is defined as the annual growth rate of the consumer price index. All regressions are estimated using a dynamic panel, two-step system GMM Standard errors are reported in parenthesis, ***, ** and * indicates the level of significance at 1, 5, and 10% level respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	PCM	ROA
PCM Lag	0.0397*** (0.0142)	
ROA Lag		0.3830*** (0.1155)
Earnings Management	-0.0011 (0.0048)	-0.0145 (0.0944)
Size	0.0388 (0.0497)	-0.0857 (0.1305)
Equity	0.0095 (0.1189)	0.4411** (0.1918)
Liquidity	-0.0150 (0.0116)	0.0204 (0.0998)
Leverage	0.0024** (0.0011)	-0.0016 (0.0020)
Intangible Asset	-14.2000*** (2.4110)	4.2194 (2.7713)
Interest Rate	-0.0572*** (0.0200)	-0.0491 (0.0543)
Inflation	0.0115 (0.0331)	0.0869 (0.0799)
GDP	-0.0523** (0.0224)	0.1394** (0.0673)
Constant	0.7856 (0.7737)	0.2338 (1.8216)
Observations	300,559	322,476
No. of groups	33,422	35,854
No. of instruments.	19	29
AB2	1.149	0.746
P-value	0.251	0.456
Hansen's Test	8.662	17.49
P-value	0.372	0.490
F-test	20.66	5.756
P-value	0.000	0.000

4.4.3 Evaluating Persistence of Profit Using Quantile Regression.

Having established the presence of profit persistence, the study then examines the factors that affect persistence in earnings. A quantile regression model is used. This model is preferable to the least square regression due to the following reasons. To begin with, it prevents the identical distribution of error terms across the various point of estimation. Secondly, this model is a heavy-tailed distribution and produces results that are robust to outliers. More so, the quantile regression model avoids the assumption that the error terms are distributed identically across the various points of conditional distribution. When variables are skewed and not normally distributed, the quantile regression is used. The coefficient of the quantile regression is interpreted as a marginal change in the explained variable as a result of a marginal change in the explanatory variable at a particular quantile.

Table 4.11 and 4.12 show the results of the quantile regression for the various quantiles with Price Cost Margin (PCM) and Return on Asset (ROA) as dependent variables respectively. From the results in table 4.11, earnings management only has a significant effect at the 25th quantile. Low profitable firms manage earnings downward in order to boost performance. On the other hand, size affects performance at all levels. However, a negative but significant relationship is observed between size and PCM for firms operating above the low profitable level (i.e, 25th quantile). Stephan and Tsapin (2008), relate this outcome to the effective scale of operation as these firms that are more profitable reduce their size to maintain higher profits. Amidu and Harvey (2016) also associate the negative relationship between profit and size to managerial inefficiency experienced by firms as they expand. Also, firms operating in the least and low profitable class experience a positive significant relationship between profit and equity. These firms thus obtain extra benefits

in profits when they raise more capital through shares. Meanwhile, the most profitable firms record a reduction in their profit as their equity declines.

Table 4.11: Determinants of Persistence of Profit- PCM

The dependent variable is Price Cost Margin (PCM). Earnings Management is proxied by Discretionary Accrual, Size is the natural log of total Asset, Equity is the ratio of total equity to total asset, Liquidity is measured as the ratio of current asset to current liabilities of the firm, and leverage is the debt to equity ratio. Intangible Asset is the ratio of intangible asset to total asset of a firm. Inflation is the annual growth rate of the consumer price index. GDP accounts for the difference in economic growth across the countries. All regressions are estimated using the quantile regression model. Standard errors are reported in parenthesis, ***, ** and * indicates the level of significance at 1, 5, and 10% level respectively. Diagnostic test: (1) No. of observation, (2) Pseudo R2.

PCM	Q10	Q25	Q50	Q75	Q90
Earnings Management	0.0002 (0.0016)	-0.0012* (0.0005)	-0.0007 (0.0005)	-0.0012 (0.0008)	-0.0005 (0.0013)
Size	0.0159*** (0.0004)	0.0051*** (0.0001)	-0.0044*** (0.0001)	-0.0141*** (0.0002)	-0.0225*** (0.0003)
Equity	0.9820*** (0.0290)	0.0234** (0.0085)	0.0128 (0.0090)	0.0243 (0.0142)	-0.2052*** (0.0230)
Liquidity	-2.5525*** (0.0016)	-0.0005 (0.0005)	0.0005 (0.0005)	0.0240*** (0.0008)	0.2345*** (0.0013)
Leverage	0.0006 (0.0012)	0.0003 (0.0004)	0.0001 (0.0004)	-0.0002 (0.0006)	-0.0005 (0.0010)
Intangible Asset	0.2090*** (0.0084)	0.2366*** (0.0024)	0.3179*** (0.0026)	0.3706*** (0.0041)	0.2991*** (0.0066)
Interest Rate	0.0012*** (0.0003)	0.0003*** (0.0001)	0.0001 (0.0001)	-0.0010*** (0.0001)	-0.0026*** (0.0002)
Inflation	-0.0081*** (0.0005)	-0.0073*** (0.0001)	-0.0067*** (0.0001)	-0.0034*** (0.0002)	-0.0013*** (0.0004)
GDP Growth	0.0031*** (0.0004)	0.0005*** (0.0001)	-0.0019*** (0.0001)	-0.0057*** (0.0002)	-0.0084*** (0.0003)
Constant	-0.2350*** (0.0063)	0.0797*** (0.0018)	0.3324*** (0.0019)	0.6279*** (0.0031)	0.9602*** (0.0050)
Observation	334365	334365	334365	334365	334365
Pseudo R2	0.0032	0.0021	0.0058	0.0142	0.0229

Liquidity has a positive significant effect on profit for firms operating in the 10th quantile and a positive significant effect for firms operating above the mid quantile. This is an indication firms operating in the least profitable class with less volatile cash flows will not receive an extra reward in the form of high profit. However, the case is different for firms operating above the profitable class as a rise in their liquidity position (fall in cash flow volatility), will lead to an extra benefit in the form of increased profits. Prior studies show that innovation sustains the profits of firms (Stephan & Tsapin, 2008). Consistent with this, the explanatory power of intangible asset is high at all profit levels for Price Cost Margin. This means that regardless of the profit level, as firms invest in patents and copyrights, their profits persist.

All the microeconomic variables included in this study record a significant effect on Price Cost Margin. At the 10th and 25th quantile, the coefficient of interest rate has a positive relationship with Price Cost Margin. However, a significant negative relationship is observed between the interest rate and PCM from the 75th and 90th quantile. This negative relationship shows that as interest rate in these countries rises, firms in countries operating above the mid quantile will record a reduction in profit. The coefficient of inflation is negative but significant at all levels of profit persistence. An indication that as average price levels in the various countries rise, the profit persistence of firms will fall at all the various levels. The changes in economic growth in the various countries affect persistence positively at the 10th and 25th, but a significant negative relationship is recorded from the 50th quantile. Least and low profitable firms tend to benefit when economic growth and business opportunities rises. However, firms operating above the low profitable level do not benefit when business opportunities and economic development rises.

The next table presents the quantile regression results with return on asset as the dependent variable. From the results, earnings management shows an insignificant effect on profit at all profit levels except at the least profit level. This means that firms in the least profit class manage earnings downwards to stimulate the persistence of earnings. As anticipated, size and equity have a significant effect on profit persistence regardless of the profit level. This implies that the size and the value of shares in the firm has a substantial effect in predicting the profit persistence of the firm regardless of its profitability position. Liquidity is significant at all levels of profit persistence except for the 75th quantile. A negative but significant relationship exists between the persistence in ROA and liquidity at the 10th, 25th and 50th quantile. This indicates that persistence in ROA is likely to decline when firms below the highly profitable class are not able to meet their current obligations as they fall due. The relationship between Intangible Asset and Return on Asset is significantly positive at the 10th and 50th quantile. However, at the 90th quantile, a negative but significant relationship is observed, an indication that firms in the most profitable class still perform poorly although they may have invested heavily in patents and copyrights and other kinds of intangible assets. On the other hand, least and low profitable firms perform better as they invest in intangible assets.

Among the microeconomic variables, a significant positive relationship is recorded with respect to GDP and Interest rate and profit at the various quantiles. This means that as the interest rate and economic development increase, the profits of the firms in the various countries will equally improve regardless of the profitability position. However, with respect to inflation, a positive and significant relationship is observed for firms in countries operating above the least profit class. A signal that firms in these countries still report strong profit persistence as general prices increases.

Table 4.12: Determinants of Profit Persistence- ROA

The dependent variable is Return on Asset (ROA). Earnings Management is proxied by Discretionary Accrual. Size is the natural log of total Asset. Equity is the ratio of total equity to total asset. Liquidity is measured as the ratio of current asset to current liabilities of the firm, and leverage is the debt to equity ratio. Intangible asset is the ratio of intangible asset to total asset of a firm. Inflation is the annual growth rate of the consumer price index. GDP accounts for the difference in economic growth across the countries. All regressions are estimated using the quantile regression model. Standard errors are reported in parenthesis, ***, ** and * indicates the level of significance at 1, 5, and 10% level respectively. Diagnostic test: (1) No. of observation, (2) Pseudo R2.

ROA	Q10	Q25	Q50	Q75	Q90
Earnings Management	-0.0038** (0.0014)	-0.0018 (0.0054)	-0.0006 (0.0016)	0.0007 (0.0007)	0.0001 (0.0007)
Size	0.0689*** (0.0004)	0.0340*** (0.0015)	0.0103*** (0.0004)	0.0016*** (0.0002)	-0.0037*** (0.0002)
Equity	1.1311*** (0.0000)	0.4469*** (0.0000)	0.1608*** (0.0000)	0.0052*** (0.0000)	-0.0154*** (0.0000)
Liquidity	-1.1155*** (0.0014)	-0.2826*** (0.0055)	-0.0139*** (0.0016)	-0.0006 (0.0007)	-0.0007 (0.0007)
Leverage	0.0018 (0.0013)	0.0005 (0.0050)	0.0000 (0.0015)	-0.0002 (0.0006)	-0.0003 (0.0007)
Intangible Asset	0.1230*** (0.0086)	0.0619 (0.0330)	0.0396*** (0.0097)	0.0068 (0.0041)	-0.0383*** (0.0045)
Interest Rate	0.0072*** (0.0003)	0.0042*** (0.0011)	0.0025*** (0.0003)	0.0015*** (0.0001)	0.0013*** (0.0001)
Inflation	-0.0006 (0.0005)	0.0024 (0.0020)	0.0032*** (0.0006)	0.0038*** (0.0002)	0.0052*** (0.0003)
GDP Growth	0.0162*** (0.0004)	0.0085*** (0.0017)	0.0035*** (0.0005)	0.0030*** (0.0002)	0.0027*** (0.0002)
Constant	-2.0411*** (0.0060)	-0.8402*** (0.0231)	-0.2087*** (0.0068)	0.0515*** (0.0029)	0.2035*** (0.0031)
Observation	359206	359206	359206	359206	359206
Pseudo R2	0.0032	0.0021	0.0058	0.0142	0.0229

4.4.4 The Effect of Earnings Persistence and Earnings Management on Stock Returns

Finally, this study examines the effect of earnings persistence and earnings management on stock returns. The results of the panel regression are displayed in table 4.13 and 4.14 respectively. All the estimations are done using a two-step system GMM. The results are presented in a three-column table. For each table, the first column shows the effect of profit persistence (i.e., persistence in PCM and ROA, respectively) on stock returns when earnings management is not included. The second column shows the effect of earnings management on stock returns in the absence of profit persistence. The third column presents the interactive effect of profit and earnings management on stock returns.

Table 4.13 presents the results on the sensitivity between persistence in PCM and earnings management on stock returns and Table 4.14 presents the results on the sensitivity between persistence in ROA and earnings management to stock returns. From the tables, the first lag of stock market returns is positive and significant at all the three-point of estimation. This indicates that the stock return variable is dynamic and that previous stock returns have a positive influence on their current values. This also supports the weak form efficient market hypothesis which states that stock returns reveal all past information.

Table 4.13: The Sensitivity of Earnings Persistence(PCM) and Earnings Management to Stock Returns

Table 4.13 presents the two-step system GMM regression result, Windmeijer-corrected standard error, small sample adjustment and orthogonal deviation. All regressions are conducted using dynamic panel data estimation. The dependent variable is Stock market Returns. SR lag is the first lag of stock returns. PCM is Price Cost Margin and is measured as the ratio of sales less cost of goods sold to sales. Discretionary accrual is the proxy for earnings management. Size is measured as the natural logarithm of total assets; leverage, measured as debt to equity. , Equity is the ratio of total equity to total asset Liquidity is measured as the ratio of current asset to current liabilities. Goodwill is measured as the ratio of intangible asset to total asset. GDP growth, the annual economic growth rate and Inflation, the annual change in price account for the macroeconomic environment. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	(1)	(2)	(3)
SR Lag	0.3039** (0.1330)	0.5316** (0.2462)	0.2500*** (0.0518)
EP(PCM)	0.0108 (0.0142)		0.0224 (0.0138)
Earnings Management(EM)		-0.0876 (0.2308)	-0.0036 (0.0454)
PCM*EM			0.0190 (0.0142)
Size	0.0376 (0.0542)	0.4163* (0.2481)	0.0916*** (0.0218)
Equity	-0.234 (0.143)	0.0503 (0.0714)	0.0157 (0.0436)
Leverage	0.00376 (0.0191)	-0.0110** (0.0046)	0.0031 (0.0361)
Liquidity	0.0029 (0.5374)	0.1715 (0.1878)	0.1303 (0.0904)
Intangible Asset	1.1290 (2.5895)	21.3413* (11.3077)	2.5986*** (0.7188)
Interest Rate	0.0288* (0.0175)	0.0940* (0.0516)	-0.0127 (0.0576)
Inflation	-0.1557*** (0.0501)	-0.6162 (0.4302)	-0.0899*** (0.0295)
GDP	0.1454*** (0.0464)	0.4397** (0.2192)	0.0649*** (0.0250)
Constant	-0.9067 (0.9536)	-8.5216* (4.8514)	-1.8279*** (0.6291)
Observations	200,012	213,289	200,012
No. of groups	23,528	24,913	23,528
No. of instruments.	15	12	19
AB2	-1.192	-0.635	-0.835
P-value	0.233	0.525	0.404
Hansen's Test	2.487	0.383	3.891
P-value	0.647	0.536	0.691
F-test	1.955	2.583	7.667
P-value	0.0339	0.0040	0.000

The interaction between profit persistence and earnings management show the sensitivity between profit persistence and earnings management to stock returns. From both tables, a positive and insignificant relation to stock returns is recorded. This confirms the second hypothesis of this study that the interaction between profit persistence and earnings management affects stocks. The positive effect implies that when firms manage earnings to stabilize profits, they are rewarded in the form of positive stock returns. However, the level of returns they obtained from this action is not significant.

From both tables, size, leverage, intangible asset, interest rate, inflation, and GDP all have a significant effect on stock return. Size and intangible asset have a positive effect on stock returns, and this means that investors look out for the nature of assets in the firms in which they invest. However, leverage has a negative but significant effect on stock returns, an indication that when the debt to equity ratio of firms declines, they are rewarded in the form of higher stock returns.

With respect to the macroeconomic variables, a negative and significant effect is recorded between inflations and stock returns. This means that the high inflation rates recorded in prices lead to a decrease in effective rates on returns on stocks; hence, the reduction in stock returns. A positive effect is observed between interest rate and stock returns, an indication that a rise in interest rate improves the returns on stock. GDP also has a significant positive effect on stock returns. The economic implication of this is that investors respond to the business opportunities offered by high economic growth (GDP) in a country, and hence the stock returns of the various firms operating in these countries increases. Theoretically, this finding supports the EMH

assertion that stock returns reflect micro economic information.

Table 4.14: The Sensitivity of Earnings Persistence(ROA) and Earnings Management to Stock Returns

Table 4.14 presents the two-step system GMM regression result, Windmeijer-corrected standard error, small sample adjustment and orthogonal deviation. All regressions are conducted using dynamic panel data estimation. The dependent variable is Stock market Returns. SR lag is the first lag of stock returns. ROA is Return on asset and is measured as the ratio of operating profits to total asset. Discretionary accrual is the proxy for earnings management. Size is measured as the natural logarithm of total assets; leverage, measured as debt to equity, Equity is the ratio of total equity to total asset Liquidity is measured as the ratio of current asset to current liabilities. Goodwill is measured as the ratio of intangible asset to total asset. GDP growth, the annual economic growth rate and Inflation, the annual change in price account for the macroeconomic environment. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	(1)	(2)	(3)
SR Lag	0.4839** (0.1910)	0.5316** (0.2462)	0.4353*** (0.1447)
EP(ROA)	-0.0606 (0.0667)		0.0027 (0.0443)
Earnings Management(EM)		-0.0876 (0.2308)	0.0350 (0.0462)
ROA*EM			2.9976 (4.0240)
Size	0.0848** (0.0396)	0.4163* (0.2481)	0.2003** (0.0939)
Equity	-0.0097 (0.0208)	0.0503 (0.0714)	0.0102 (0.0146)
Leverage	0.0061 (0.0154)	-0.0110** (0.0046)	-0.00368 (0.00465)
Liquidity	0.0345 (0.0318)	0.1715 (0.1878)	0.0287 (0.0669)
Intangible Asset	4.0860* (2.3661)	21.3413* (11.3077)	11.5739*** (3.8196)
Interest Rate	0.0131 (0.0132)	0.0940* (0.0516)	0.0535** (0.0228)
Inflation	-0.1496** (0.0604)	-0.6162 (0.4302)	-0.2738 (0.1834)
GDP	0.1249** (0.0636)	0.4397** (0.2192)	0.2521** (0.1023)
Constant	-1.7226** (0.8706)	-8.5216* (4.8514)	-4.2585** (1.8450)
Observations	208,858	213,289	208,858
Number of groups	24,806	24,913	24,806
No. of instruments.	15	12	14
AB2	-0.166	-0.635	-0.415
P-value	0.868	0.525	0.678
Hansen's Test	3.715	0.383	1.051
P-value	0.446	0.536	0.305
F-test	3.421	2.583	8.801
P-value	0.0001	0.0040	0.0000

4.4.5 The Effect of Earnings Persistence and Earnings Management on Stock Returns (Robustness Test)

In addition to the dynamic auto regressive model used to measure profit persistence, most studies additionally employ the long run profit or equilibrium profit rate as a measure of profit persistence. (Puziak, 2017; Gschwandtner & Hauser, 2016; Bektas, 2007). The long run profit rate is defined as, $\pi_l = \frac{\alpha_i}{1-\lambda_i}$ where π_l the Long run profit of a firm, α_i is the permanent advantage of the firm and λ_i is the speed of convergence or the short run persistence.

Table 4.15 and 4.16 present the results on the sensitivity between persistence in profit and earnings management on stock returns robustness test. From both tables the lag of stock returns is positive and significant, an implication that previous stock returns affect subsequent stock returns. The results recorded from the robustness test on the interaction between earnings management and earnings persistence to stock returns does not differ from the previous outcomes. A negative insignificant effect is recorded on the interaction between profit persistence and earnings management to stock returns. Thus, suggesting that stock return is not sensitive to both earnings management and earnings persistence.

From both tables, size leverage and intangible assets have a positive effect on stock returns, an implication that an increase in the tangible and intangible asset base and debt to equity ratio will lead to an extra reward for firms in the form of stock returns. However on table 4.16, equity shows a negative relationship to stock returns.

Table 4.15: The Sensitivity of Earnings Persistence(PCM) and Earnings Management to Stock Returns (Robustness Test)

Table 4.15 presents the two-step system GMM regression result, Windmeijer-corrected standard error, small sample adjustment and orthogonal deviation. All regressions are conducted using dynamic panel data estimation. The dependent variable is Stock market Returns. SR lag is the first lag of stock returns. EP (PCM) is the equilibrium profit rate of price cost margin and is measured as $\frac{\alpha_i}{1-\lambda_i}$. Discretionary accrual is the proxy for earnings management. Size is measured as the natural logarithm of total assets; leverage, measured as debt to equity. , Equity is the ratio of total equity to total asset Liquidity is measured as the ratio of current asset to current liabilities. Goodwill is measured as the ratio of intangible asset to total asset. GDP growth, the annual economic growth rate and Inflation, the annual change in price account for the macroeconomic environment. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	(1)	(2)	(3)
SR Lag	0.4423* (0.2397)	0.4481* (0.2556)	0.2922** (0.1194)
EP(PCM)	-0.0005 (0.0047)		0.0501 (0.0433)
Earnings Management(EM)		0.0008 (0.0225)	0.0759 (0.1589)
EP*EM			0.0334 (0.0283)
Size	0.0854 (0.0549)	0.1097* (0.0586)	0.0788* (0.0452)
Equity	0.0037 (0.0122)	-0.0020 (0.0022)	0.0360 (0.1128)
Leverage	-0.0025 (0.0340)	0.0569** (0.0280)	-0.0374 (0.0717)
Liquidity	0.0010 (0.0013)	-0.0007 (0.0086)	0.1287 (0.1761)
Intangible Asset	2.3192** (1.0001)	0.5096 (1.3283)	2.5931 (1.9717)
Interest Rate	-0.0081 (0.0546)	-0.0215** (0.0105)	0.0146 (0.1052)
Inflation	-0.0894 (0.0683)	0.1318 (0.0889)	-0.1182 (0.0846)
GDP	0.1192*** (0.0356)	0.0545** (0.0269)	0.0720 (0.0667)
Constant	-1.5514** (0.7570)	-1.9968** (0.9743)	-1.6183 (1.3137)
Observations	200,012	213,289	200,012
No. of groups	23,528	24,913	23,528
No. of instruments.	16	13	14
AB2	1.525	0.385	-0.650
P-value	0.127	0.700	0.516
Hansen's Test	4.570	0.579	0.0310
P-value	0.471	0.749	0.860
F-test	3.309	9.088	2.044
P-value	0.0003	0.000	0.017

Table 4.16: The Sensitivity of Earnings Persistence(ROA) and Earnings Management to Stock Returns (Robustness Test)

Table 4.16 presents the two-step system GMM regression result, Windmeijer-corrected standard error, small sample adjustment and orthogonal deviation. All regressions are conducted using dynamic panel data estimation. The dependent variable is Stock market Returns. SR lag is the first lag of stock returns. EP (ROA) is the equilibrium profit rate of Return on Asset and is measured as $\frac{\alpha_i}{1-\lambda_i}$. Discretionary accrual is the proxy for earnings management. Size is measured as the natural logarithm of total assets; leverage, measured as debt to equity. , Equity is the ratio of total equity to total asset Liquidity is measured as the ratio of current asset to current liabilities. Goodwill is measured as the ratio of intangible asset to total asset. GDP growth, the annual economic growth rate and Inflation, the annual change in price account for the macroeconomic environment. Standard errors are in parentheses; ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively. Diagnostic tests: (1) number of observations, (2) The number of Groups (3) The instrument count, (4) the Arellano-Bond (AB2) test for first and second order serial correlations in the residuals with a null hypothesis of no second-order serial correlation, (5) The Hansen test for over identifying restrictions with the null hypothesis of exogenous instruments, (6) the F-test for joint significance of instruments.

VARIABLES	(1)	(2)	(3)
SR Lag	0.2632** (0.1292)	0.4481* (0.2556)	0.3397** (0.1484)
EP(PCM)	0.0105 (0.0085)		0.0004 (0.0042)
Earnings Management(EM)		0.0008 (0.0225)	-0.0075 (0.0049)
EP*EM			-1.1868 (0.7391)
Size	0.0931* (0.0549)	0.1097* (0.0586)	0.1416** (0.0564)
Equity	-0.0015 (0.0014)	-0.0020 (0.0022)	-0.0025* (0.00147)
Leverage	0.0265 (0.0171)	0.0569** (0.0280)	0.0319* (0.0166)
Liquidity	-0.0039 (0.0123)	-0.0007 (0.0086)	-0.0047 (0.0148)
Intangible Asset	0.5145** (0.2623)	0.5096 (1.3283)	0.3654 (0.2265)
Interest Rate	-0.0201*** (0.0068)	-0.0215** (0.0105)	-0.0203*** (0.0073)
Inflation	0.0875 (0.0613)	0.1318 (0.0889)	0.1168** (0.0479)
GDP	0.0619*** (0.0082)	0.0545** (0.0269)	0.0573*** (0.0085)
Constant	-1.6698** (0.8342)	-1.9968** (0.9743)	-2.3769*** (0.8298)
Observations	208,858	213,289	208,858
No. of groups	24,806	24,913	24,806
No. of instruments.	19	13	23
AB2	0.0268	0.385	0.0845
P-value	0.979	0.700	0.933
Hansen's Test	9.933	0.579	7.344
P-value	0.270	0.749	0.693
F-test	24.53	9.088	13.05
P-value	0.000	0.000	0.000

Macro-economic variables affect stock returns. From both tables the results show that while GDP has a positive significant effect on stock returns, interest rate has a negative significant effect. This means that as business opportunities grow, stock returns increase, however a rise in interest rate will lead to a fall in stock returns. A positive relationship is also recorded between inflation and stock returns in table 4.16. Theoretically, the significant relationship between the macro economic variables and stock returns supports the semi strong form EMH which is of the view that stock returns reflect all publicly available information.

4.5 Summary

This chapter presented the empirical results on the extent and convergence of profits, the determinants of profit persistence, and finally, the stock return effect of profit persistence and earnings management. The models used in the estimation are a discrete Markov Chain, quantile regression, and a two-step System GMM. A strong persistence and low speed of convergence is recorded. On the determinant of profit persistence, the study identifies that earnings management, among other variables, affect profit persistence. On the sensitivity of profit and earning management on stock returns, the study discovers an insignificant effect.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and conclusion of the whole study. It begins with a summary of the results derived from the previous chapter and subsequently draws a conclusion based on the summary of the results. The chapter then concludes with policy implications.

5.2 Summary of results

The persistence in earnings is measured using ROA and PCM. ROA is measured as the ratio of operating profit to total asset, while PCM is measured as the ratio of the difference between sales less cost of sale to sales. The first objective examined the extent and mobility of earnings persistence. That is the probability of firms switching among profit classes. A discrete Markov Chain model was employed. The study identified the presence of strong persistence. This means that for the whole 18 financial year, a larger proportion of the firms switched between the five profit classes ranging from least to most profitable class. These results support evidence from (Amidu & Harvey, 2016; Stephan & Tsapin, 2008).

Secondly, the study uses a dynamic panel regression model to ascertain the speed of convergence. This examined the time taken for profit to stabilize. The outcome recorded shows the presence of a relatively low speed of convergence. The time of convergence is relatively shorter for the autoregressive model as compared to the Markov Chain. It takes about 5 years for PCM and close to 4 years for ROA to adjust. On the whole, evidence on the speed of convergence in this study supports the results from other studies on non-financial firms (Stephan & Tsapin, 2008).

For the determinants of profit persistence, the quantile regression model is used. The evidence reveals that managing earnings only influences the persistence of profit at the 10th quantile for ROA and the 25th quantile for PCM. This means that least and low profitable firms manage their earnings in order to stabilize profits. Notable among the findings is that, size, liquidity and intangible assets influences the persistence of profits as predicted in literature. At the country level, GDP, inflation and interest exert an influence on the persistence of profit at all the profit levels.

Finally, this study examines the stock return effect of earnings persistence and earnings management using a two-step system GMM estimation model. The outcome shows an insignificant relationship between the interaction of both measures of earnings persistence and earnings management with stock returns. This affirms the second hypothesis of this study that the interaction between profit and earnings management affects stock returns. The insignificant effect implies that firms who try to manage earnings to conceal the deficiencies in their financial statement so as to make their profit persist do not generate any reward in the form of stock returns. Borrowing from the Efficient Market Hypothesis (EMH), the findings provides that stock returns does not reflect the interactive effect of persistence in earnings and earnings management.

5.3 Conclusion

This study examines the effect of earnings persistence and earnings management on stock returns. It employs financial data of 39,490 listed firms in 45 countries covering the period of 1995 to 2013. Two measures of earnings persistence namely ROA and PCM are employed. Discretionary accrual is used to measure Earnings management. Stock returns on the other hand is measured as the log of previous year's stock prices over current stock prices. System GMM was used to examine the

relationship. Evidence from this investigation are presented in table 4.13 and 4.14, with robustness check in table 4.15 and 4.16 respectively. In the tables, the first column analyses the relationship between persistence in earnings and stock returns. The second column examines the relationship between earnings management and stock returns. The third column analyses the joint effect of earnings persistence and earnings management on stock returns.

On the persistence in earnings, the study records evidence of strong profit persistence and low speed of convergence for both measures of profit persistence. Additionally, evidence on the determinants of persistence reveal that some firms manage earnings in order to sustain their level of profitability. This implies that there is still room for judgment in financial reporting and listed firms are able to take advantage of discretion allowed in current reporting rules to influence reported earnings. Other factors such as liquidity, intangible asset and size affect profit persistence. Additionally, at the country level, the study identifies that changes in price level (inflation) and economic growth (GDP) affect the persistence of profit.

With regards to the effect of earnings persistence on stock returns, the study provides evidence that both measures of earnings persistence does not significantly influence stock return. More so, the effect of managing earnings on stock returns reveals that earnings management does not significantly affect stock returns. Finally, on the sensitivity between persistence in earnings and earnings management, this study identifies no significant relationship between stocks returns and the joint effect of earnings persistence and earnings management. The results are the same when both measures of earnings persistence interact with earnings management and for the robustness test.

5.4 Recommendations and Policy Implication

This study makes the following recommendations and policy implications. To begin with, there is evidence of moderate profit persistence among the firms. It is recommended that these firms put in place strategies that will give rise to strong persistence in subsequent future by focusing on improving the other factors that significantly affect the persistence in profit. More so, the study identifies that least and low profitable firms manage their earnings hence contributing to the strong persistence of profit among these firms. It is therefore recommended that regulations and policies are put in place to coach the level of discretion provided by the reporting standards on earnings management.

Additionally, although the key variables, which are persistence in earnings and earnings management do not have a significant effect on stock returns, other factors such as size, leverage and intangible asset have significant effect on stock returns. It is therefore recommended that firms should channel resources into improving these factors in order to generate higher returns in the future. Also, consistent with literature, the micro economic variables employed in the study have a significant effect on stock returns. An implication that stock returns reflect micro economic information. It is therefore recommended that countries should make economic decisions that will stabilize these variables so as to enable them to generate higher returns. Finally, although, the sustainability in earnings through earnings management has an insignificant effect on stock returns, it is recommended that investors should not only fixate solely on accounting earnings but should consider other supplementary factors that are not subject to the discretion of managers before making any economic decision.

The study gives rise to three policy implications. First, the effect of earnings management on the persistence of profit is not real to a large extent. Firms that want to improve upon their profit persistence should therefore withdraw from channeling more energy into managing earnings and focus on improving other factors such as size, equity, intangible asset, leverage and liquidity. Secondly, micro economic factors affect the persistence of profits and subsequently stock returns. Policies should be put in place to stabilize these factors so as to enhance the stability of profits and the returns generated on stocks in the future. Finally, there is the presence of moderate profit persistence among the firms and variation in persistence across the industries and regions. Future studies may be conducted on the factors responsible for the variations in the profit persistence across these industries and regions and also report on the reasons behind some industries recording strong persistence and why others do not.

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APPENDIX 1

Table 4.17 Transition Probability Matrices: Results for PCM and ROA

	PCM						ROA						
	1	2	3	4	5	Pi	1	2	3	4	5	Pi	
	1995-1996						1995-1996						
1	82.49	13.76	1.81	1.25	0.69	100	1	47.65	24.74	8.59	11.45	7.57	100
2	13.22	70.57	14.69	1.24	0.28	100	2	8.12	56.74	24.9	7.13	3.1	100
3	1.99	12.52	73.21	11.62	0.66	100	3	2.21	20.39	57.01	16.55	3.83	100
4	0.94	1.16	12.28	78.93	6.69	100	4	2.02	6.09	21.07	54.87	15.95	100
5	0.92	0.46	0.83	12.07	85.71	100	5	1.4	3.26	4.48	21.45	69.41	100
Pj	19.09	23.28	24.2	21.09	12.33	100	Pj	5.49	18.71	25.92	26.24	23.64	100
	1996-1997						1996-1997						
1	80.25	15.26	2.62	1.18	0.7	100	1	58.24	22.02	8.1	4.55	7.1	100
2	11.65	73.96	12.11	1.92	0.37	100	2	9.42	58.09	21.19	7.67	3.62	100
3	1.81	11.11	75	11.11	0.97	100	3	3.34	18.91	54.37	19.42	3.96	100
4	0.45	1.19	11.37	79.62	7.37	100	4	3.47	6.36	19.26	53.4	17.51	100
5	0.56	0.48	1.12	9.53	88.31	100	5	2.02	3.26	5.06	20	69.66	100
Pj	18.89	22.79	23.5	21.32	13.51	100	Pj	7.78	18.88	23.83	25.29	24.23	100
	1997-1998						1997-1998						
1	83.44	12.23	2.35	1.07	0.91	100	1	65.11	15.68	6.12	5.45	7.65	100
2	15.02	72	10.95	1.5	0.53	100	2	14.74	56.1	16.4	7.84	4.91	100
3	2.09	12.21	73.5	11.35	0.85	100	3	6.59	26.56	43.97	18.31	4.56	100
4	1.47	1.19	11.54	79.17	6.64	100	4	4	8.45	21.45	50.02	16.09	100
5	2.05	0.48	1.23	10.95	85.28	100	5	3.41	3.92	5.49	19.62	67.54	100
Pj	19.88	21.51	22.56	21.82	14.22	100	Pj	11.91	20.79	20.27	23.37	23.65	100
	1998-1999						1998-1999						
1	77.53	14.39	3.68	2.2	2.2	100	1	63.31	17.83	5.89	5.32	7.65	100
2	14.8	68.22	14.05	2.1	0.83	100	2	14.43	56.64	18.47	7.16	3.3	100
3	2.07	13.6	70.15	12.89	1.29	100	3	5.53	24.46	45.37	19.73	4.91	100
4	1.34	1.62	13.2	74.01	9.84	100	4	3.52	9.88	21.96	47.79	16.85	100
5	0.98	0.71	1.97	9.67	86.67	100	5	3.2	4.85	6.33	20.87	64.75	100
Pj	18.58	20.23	22.11	21.72	17.35	100	Pj	14.64	22.56	20.05	21.53	21.22	100
	1999-2000						1999-2000						
1	68.26	17.66	6.67	3.89	3.52	100	1	65.17	19.37	5.66	3.96	5.83	100
2	12.37	63.38	18.27	4.14	1.84	100	2	16.66	51.99	20.31	6.78	4.26	100
3	1.93	15.29	64.43	15.7	2.64	100	3	6.44	22.76	44.86	19.83	6.11	100
4	1.25	2.71	14.1	69.89	12.05	100	4	3.31	8.54	23.26	49.09	15.8	100
5	1.02	1.11	1.29	12.9	83.68	100	5	4.09	5.16	7.73	21.03	61.99	100
Pj	15.35	19.87	22.29	22.87	19.62	100	Pj	16.09	21.39	20.96	21.6	19.97	100
	2000-2001						2000-2001						
1	71.25	15.31	5.13	4.11	4.2	100	1	70.74	16.85	5.07	3.83	3.52	100
2	14.26	65.4	15	3.27	2.07	100	2	22.26	50.45	18.72	5.93	2.64	100
3	3.34	16.2	64.16	14.29	2.01	100	3	8.96	27.49	43.63	16.31	3.61	100
4	1.8	2.96	15.38	69.06	10.8	100	4	5.48	12.19	26.07	43.16	13.11	100
5	2.28	1.37	2.31	12.5	81.54	100	5	4.99	6.13	7.86	21.82	59.19	100
Pj	15.99	19.81	21.65	22.51	20.05	100	Pj	20.53	22.85	20.81	18.87	16.94	100

Table 4.17 Continued.

	PCM							ROA					
	1	2	3	4	5	Pi		1	2	3	4	5	Pi
2001-2002							2001-2002						
1	75.49	14.77	4.07	2.73	2.94	100	1	67.51	17	5.84	3.7	5.94	100
2	12.61	67.59	15.45	2.95	1.39	100	2	20.77	51.87	17.41	6.63	3.31	100
3	2.29	15.87	67.02	13.04	1.78	100	3	8.28	26.67	42.99	18.4	3.66	100
4	1.88	1.98	14.21	71.79	10.13	100	4	4.99	11.98	22.6	45.53	14.89	100
5	2.63	1.09	2.19	12.1	81.99	100	5	4.49	6.23	7.22	20.23	61.83	100
Pj	16.41	19.94	21.87	22.15	19.62	100	Pj	22.26	23.86	19.38	18.07	16.43	100
2002-2003							2002-2003						
1	77.97	13.45	3.75	2.22	2.62	100	1	63.56	19.17	7.06	4.61	5.6	100
2	14.16	68.43	13.97	2.6	0.85	100	2	15.62	52.23	22.21	6.79	3.16	100
3	2.35	15.72	67.43	12.77	1.74	100	3	4.96	21.42	48.55	19.9	5.17	100
4	1.49	2.23	13.13	73.89	9.27	100	4	3.1	7.17	21.27	49.96	18.5	100
5	2.18	1.07	1.73	9.77	85.25	100	5	3.57	4.37	6.51	19.75	65.81	100
Pj	17.19	19.93	21.26	21.78	19.83	100	Pj	19.77	22.42	20.91	18.93	17.98	100
2003-2004							2003-2004						
1	77.22	15.01	3	2.54	2.22	100	1	64.55	17.12	7.36	4.44	6.53	100
2	13.33	69.63	14.08	2.13	0.83	100	2	13.33	47.39	26.7	8.49	4.08	100
3	2.78	15.04	68.73	12.22	1.23	100	3	3.92	18.17	47.35	23.9	6.67	100
4	1.45	2.04	13.15	73.13	10.23	100	4	1.94	6.79	18.05	50.98	22.24	100
5	1.85	0.75	1.39	10.19	85.83	100	5	3.34	3.61	4.6	16.6	71.85	100
Pj	17.08	20.05	21.03	21.42	20.42	100	Pj	17.43	19.36	21.26	20.49	21.45	100
2004-2005							2004-2005						
1	77.93	12.73	4.12	2.26	2.96	100	1	70.38	15.63	5.5	4.02	4.47	100
2	15.19	67.71	13.32	2.33	1.46	100	2	15.94	47.03	24.32	8.43	4.28	100
3	3.06	16.6	66.92	11.75	1.68	100	3	5.23	20.04	48.38	21.16	5.19	100
4	1.77	2.23	14.9	72.16	8.94	100	4	2.32	7	21.17	50.13	19.39	100
5	2.12	0.97	1.49	11.14	84.27	100	5	3.27	3.95	5.86	18.44	68.49	100
Pj	18.04	19.83	20.69	20.91	20.52	100	Pj	17.68	18.2	21.33	21.05	21.73	100
2005-2006							2005-2006						
1	76.94	14.76	3.15	2.38	2.77	100	1	71.88	14.8	4.95	3.57	4.79	100
2	13.3	69.49	13.78	2.21	1.22	100	2	18.14	46.51	22.53	8.22	4.59	100
3	2.74	15.04	68.72	11.63	1.87	100	3	5.25	17.95	47.94	23.27	5.59	100
4	2	2.04	13.38	72.87	9.71	100	4	2.79	6.91	17.36	51.03	21.92	100
5	2.59	1.27	1.22	9.37	85.55	100	5	3.27	3.61	5.73	18	69.38	100
Pj	18.76	20.33	20.24	20.07	20.6	100	Pj	19.92	17.22	19.54	21.08	22.24	100
2006-2007							2006-2007						
1	79.53	13.37	2.65	1.84	2.61	100	1	73.66	14.17	4.21	2.86	5.11	100
2	14.11	69.46	13.52	2.1	0.81	100	2	17.46	46.66	23.34	8.62	3.91	100
3	2.71	15.75	68.19	11.61	1.74	100	3	4.66	17.65	47.12	24.92	5.64	100
4	1.93	2.64	12.91	72.94	9.57	100	4	3.23	6.29	18.46	52.31	19.71	100
5	2.06	1.19	1.41	9.6	85.74	100	5	2.96	3.72	5.97	19.2	68.14	100
Pj	20.48	20.8	19.54	19.09	20.09	100	Pj	19.75	16.32	19.14	22.32	22.48	100

Table 4.17 Continued

	PCM						ROA						
	1	2	3	4	5	Pi	1	2	3	4	5	Pi	
2007-2008							2007-2008						
1	80.69	12.71	2.48	1.95	2.18	100	1	78.56	11.77	3.08	2.3	4.3	100
2	17.19	67.74	12.01	2.03	1.02	100	2	28.12	47.43	15.5	5.71	3.23	100
3	3.6	18.95	65.6	10.6	1.25	100	3	10.18	26.77	41.95	16.6	4.5	100
4	1.96	2.78	15.22	70.26	9.78	100	4	5.66	12.43	24.76	43.12	14.03	100
5	2.31	1.09	1.82	10.31	84.47	100	5	5.22	6.24	7.68	20.37	60.49	100
Pj	21.84	20.98	18.99	18.47	19.72	100	Pj	24.54	19.32	18.26	18.67	19.22	100
2008-2009							2008-2009						
1	77.65	15.14	2.96	1.73	2.53	100	1	70.63	14.82	5.67	3.84	5.04	100
2	18.73	60.8	16.99	2.4	1.08	100	2	23.2	47.21	18.12	7.33	4.14	100
3	3.84	17.04	63.18	14.35	1.59	100	3	8.56	32.7	38.14	15.41	5.18	100
4	2.56	2.97	14.43	69.59	10.45	100	4	6.47	15.92	25.39	39.09	13.13	100
5	2.91	0.92	1.95	10.68	83.54	100	5	5.42	7.43	8.18	21.54	57.44	100
Pj	22.6	19.94	19.25	18.61	19.6	100	Pj	25.22	23.02	18.13	16.73	16.9	100
2009-2010							2009-2010						
1	76.17	16.22	3.45	2.1	2.06	100	1	65.27	17.91	6.23	4.54	6.05	100
2	15.08	63.12	17.57	2.84	1.39	100	2	12.53	46.33	24.97	10.78	5.4	100
3	3.02	16.62	63.66	14.78	1.92	100	3	4.35	19.19	43.99	25.2	7.26	100
4	2.14	1.93	12.23	72.38	11.32	100	4	2.52	7.22	20.45	48.46	21.35	100
5	2.23	1.11	1.75	8.42	86.49	100	5	3.95	4.01	7.89	18.72	65.43	100
Pj	21.21	19.87	19.21	19.28	20.43	100	Pj	20.85	20.3	19.94	19.58	19.32	100
2010-2011							2010-2011						
1	82.29	11.21	2.54	1.68	2.29	100	1	74.08	14.19	4.24	2.53	4.97	100
2	18.56	67.25	11.16	1.88	1.15	100	2	17.59	49.66	22.1	7.36	3.29	100
3	3.25	18.52	66.03	10.49	1.71	100	3	4.83	22.76	46.81	21.05	4.55	100
4	1.99	2.38	14.22	72.31	9.09	100	4	3.19	9.31	23.54	48.08	15.88	100
5	2.16	0.86	1.85	10.15	84.98	100	5	4.63	4.03	6.74	21.66	62.94	100
Pj	22.24	19.84	18.55	18.92	20.45	100	Pj	21.21	20.06	20.56	19.94	18.23	100
2011-2012							2011-2012						
1	79.13	11.84	2.79	2.54	3.7	100	1	75.82	13.82	4	2.24	4.12	100
2	17.21	65.48	12.31	3.03	1.97	100	2	18.21	51.8	20.66	5.72	3.61	100
3	3.68	16.33	65.85	11.44	2.7	100	3	5.39	24.05	49.72	17.23	3.61	100
4	2.19	3	14.51	70.29	10.02	100	4	3.41	10.17	24.07	48.71	13.65	100
5	2.11	0.8	1.49	9.56	86.04	100	5	4.89	4.46	7.38	20.77	62.5	100
Pj	22.01	19.25	18.38	18.74	21.62	100	Pj	22.16	21.02	21.36	18.77	16.69	100
2012-2013							2012-2013						
1	75.74	14.49	3.14	2.51	4.13	100	1	73.82	15.36	4.29	2.29	4.24	100
2	13.12	67.67	14.83	2.7	1.68	100	2	17.2	53.23	21.48	5.41	2.68	100
3	2.69	13.4	67.95	13.52	2.44	100	3	4.47	23.9	51.31	16.9	3.42	100
4	1.54	2.08	11.85	73.16	11.37	100	4	2.89	7.6	25.25	51.54	12.71	100
5	1.73	0.86	1.37	8.58	87.46	100	5	4.32	4.86	5.88	22.04	62.89	100
Pj	20.03	19.31	18.64	19.19	22.82	100	Pj	21.5	21.94	22.45	18.87	15.24	100