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Title

The Accuracy of Analysts` Earnings Forecasts in Emerging Markets: the role of market condition matter

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March 2023

DECLARATION

I, Kenneth Chatambudza, declare that the work reported in this research is my own, except where otherwise indicated and acknowledged. It is submitted for the Master of Management in Finance and Investments degree at the University of the Witwatersrand. This research paper has not, either in whole or in part, been submitted for a degree or diploma to any other universities.

K.C 10/03/23

……... ……..

Signature of candidate Date

DEDICATION

This work is dedicated to my parents who have sacrificed a lot for me to get to where I am today.

ACKNOWLEDGMENT

I express my gratitude to Prof Thabang Mokoaleli-Mokoteli who supervised and guided me through this research paper and offered constructive feedback which I learned a lot from. I offer my sincere gratitude.

Finally, my friends and family for always encouraging me to never give up and keep believing that I will finally get the research completed. I am thankful.

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ABSTRACT

Financial analysts are responsible for gathering and evaluating company information. One of the outputs of that process are analyst earnings forecasts. Analyst forecasts are important to investors, to company stakeholders such as regulators, and contribute towards improving the efficiency of financial markets. There is limited work that has been done in recent times to investigate the accuracy of analysts' earnings forecasts in emerging and developed markets. This study investigates the accuracy of earnings forecasts between emerging and developed markets and goes further to establish some of the factors that influence earnings forecasts in these two markets.

This study looked at 10 countries, with Brazil, South Africa, Russia, India, and China representing the emerging market and the United States of America (USA), United Kingdom (UK), Germany, Japan, and Singapore representing the developed markets. From these countries, 50 equities of the top-performing companies were analysed over a period between 2008 and 2012.

Quantitative analysis showed that earnings forecasts in emerging markets are not akin to those of developed markets. Multiple regression analysis finds that earnings forecasts accuracy is more in emerging markets when compared with developed markets, contradicting available literature. Factors influencing forecast accuracy are not significantly different across the regions. Debt-to-asset ratio (DA) is the only factor with the same influence in both regions and price-to-book (PB) has the most varying influence within regions.

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CHAPTER 1

1.1 Introduction

This chapter provides the background of the study and the objectives as well as the problem statement which justifies the need for this study. It is organised as follows: Section 1.2 provides the research background. Section 1.3 discusses the research problem. Section 1.4 lists the research questions. Section 1.5 provides the research objectives. Section 1.6 discusses the research gap and section 1.7 presents the structure of the thesis. Chapter summary concludes the chapter.

1.2 Background of the study

The growing importance of emerging markets in the global financial markets has led to an increase in investment and analysts' attention to these markets' equities. This led to increased capital movements into these regions (Carvalhal & de Melo Mendes, 2008). This change is supported by the increasing foreign direct investments (FDI) from the capital investment boom since the 1990s (CGFS, 2009). Regardless of the positive view of foreign investors about emerging market, the challenge is that emerging markets as these markets are often characterised by severe information asymmetry compared to in developed markets counterparts. The role of analyst then become essential as they gather information about countries and companies, analyse that information and sell/provide it to investors so they may make informed economic decisions.

Financial analysts play a huge role in the financial markets. They compile and analyse data from both private and public sources to generate forecasts on company earnings. They further forecast future financial prospects and make buy and sell recommendations that investors can utilise in their processes of making decisions (Yang, 2018). Levine et al., (1998) state that analysts play two significant roles namely assimilation and processing of public information, and acquisition and dissemination of new information. The contents of analysts' reports are viewed as expert opinions that are expected to yield above-average risk-adjusted returns for local and foreign investors.

One of the pivotal roles of financial analysts is earnings forecast. Earnings forecast entails estimating company's annual earnings in the upcoming financial year. The accuracy of analysts forecast is an important measure of analysts' performance (Gu & Wu, 2003). Bias in the

`

forecasts of analysts affects accuracy. Forecast bias is defined by Gu & Wu (2003), as the systematic deviations of actual realisation from the forecasts made by the analysts. The greater the bias in estimates the greater the inaccuracy of an analyst's forecast.

The extent of bias or inaccuracies in emerging markets relative to developed markets over the last decade has not been extensively researched, apart from Firth & Gift (1999), who investigated corporate earnings forecasts across 34 countries. Firth & Gift (1999) found that there is visible variability in both forecast accuracy and bias and concluded that Southern American countries have forecast accuracy and bias which is more variable and tends to be inaccurate compared to developed countries such as European or Scandinavian countries. They further established that although the United States of America is treated as the benchmark for efficiency, the research herein concluded that it experienced average forecast accuracy and bias.

Analysts' forecast accuracy in making predictions/forecasts can also be used as a guide for the quality of the research they conduct (Walther, 1997). The ease of access to information and data has led to an increase in analysts' that follow stocks in emerging markets and the level of expertise in the analysis has also improved. Ahmed (2017) concludes that forecast accuracy in the Tunisian stock market has improved over time as measured by the increase in analysts' level of expertise and the number of analysts. They also state that as the quality of information available improves forecast accuracy within the market also improves because of this. It is established that analysts that are not specialists have been outperformed by their specialist counterparts. In addition, there has been an increase in the presence of foreign analysts in emerging markets. This has resulted in a marked increase in the rate of improvement in analysts' forecasts, however, the extent to which the accuracy in forecasts in emerging markets compares to the accuracy of forecasts in developed markets have not yet been established in recent times.

The earnings forecasts are grounded in analysts' projections of a company's growth and profitability. Analysts can forecast these earnings through building financial models which enable them to estimate future revenues and costs (Duboisse de Ricquebourg & Clacher, 2017). The analyst extracts information from various sources including, but not limited to information and earnings from SEC filings. These include financial statements, quarterly and annual

reports, industry related reports and reports that detail the macro-economic environment, conference calls and other various management communications. Analysts make use of this data to generate target price, earnings forecasts and stock recommendations that are accompanied by a description of the firm's outlook in the form of a conceptual report (Ramnath et al., 2006). Firth & Gift (1999) state that researchers who study accounting and finance issues often utilise earnings forecasts that are produced by financial analysts as they are an important benchmark. In addition, earnings forecast from a financial analyst can be regarded as a necessary agent in the making and shaping of policies and regulation.

Forecasts from impartial analysts assist investors in their investment decision-making (Kim et al., 2017). According to Barth & Hutton (2000), market efficiency is improved by analysts. An example is that stock prices for firms who are closely followed by analyst's process accrual and cash flow information quicker than those not closely followed. Healy & Palepu (2001) found variations in analysts' forecasts due to fluctuations in the specialisations and incentives of analysts. they also found that analysts who provided their employer with information that led to increased returns and trading volume were heavily compensated.

A large amount of research on earnings forecasts and their accuracy has been done in developed markets but is only gaining momentum in emerging markets lately (Karamanou, 2012). In developed markets, studies by (Capstaff et al., 1995; Patz ,1989; Bhaskar & Morris,1984) conclude that are more precise with their earnings forecasts and outperform different mechanical time series models. Flint & Ahmed (2019) evaluated forecast accuracy in South Africa, which is an emerging market. They included 43 086 analysts' forecasts, covering a 15-year period starting from 2004 to 2018. They concluded that analysts are optimistically wrong 32% of the time. Karamanou (2019) analysed the earnings forecasts change over time, also South African market. The study concludes that "analysts' earnings forecasts increase over time with analysts exerting more effort on the quality of their forecasts, possibly by gaining more experience and/or by responding to quality demands by more sophisticated investors." They mention on inception of a market the stock behaviour mimics that of a random walk process but as the market matures it relies on analysts' forecasts.

The overarching objective of this study is to examine the comparative earnings accuracy in emerging and developed markets, and further determine the factors that influence forecast accuracy in these two environments.

1.3 Research problem

A listed company comprises of multiple stakeholders which include investors, creditors, management, the public, and regulators. They all need all use company information for different purposes and many of them rely on analysts' forecasts to make long-term and short-term capital allocation decisions. This means that inaccurate analysts forecasts can result in massive losses for different stakeholders. Investors develop their valuation models using the information from analysts' forecasts to calculate the innate value of the company and to make investment decisions. (Lin & Lin, 2017; Rahman et al., 2019). Hence, it is pertinent investors and other stakeholders understand whether analysts' forecasts are accurate so that they can determine the extent to which they can rely on them.

A large amount of research (e.g., Firth & Gift, 1999; Womack, 1996; Capstaff et al., 1995) on analysts forecast accuracy was carried out in developed economies and there is a dearth of information about their accuracy in emerging economies. Volatile macroeconomic factors like inflation, exchange rates, and political risk, are typical of emerging markets (Kothari et al., 2016). In comparison to developed markets, forecasting earnings in the environment of developing economies may be more challenging due to these risks. According to Kang (2003), forecast accuracy declines as macroeconomic uncertainty increases. As more investors entering emerging markets, there is a need to do more research about analysts forecasts accuracy in emerging markets relative to developed markets.

Firth & Gift, (1999) state that emerging markets have lower accuracies than developed markets., although the difference but does not go further to establish the factors that influence the accuracy and differentiate this accuracy between emerging and developed markets. This study investigates the factors influence these earnings forecasts in these two economies.

1.4 Research objectives

The objectives of this research are to:

- Compare the earnings forecast accuracy in emerging and developed markets.
- Identify the factors that significantly influence the accuracy analysts` forecasts in emerging markets and developed markets.

1.4.1 Research questions

- What, if any, are the statistical differences in the earnings forecast accuracy between emerging and developed markets?
- What are the key factors that influence analysts` earnings forecasts in emerging markets?

What is the relationship between the key factors identified and their impacts the accuracy of earnings forecast in emerging and developed markets.

1.5 Significance of the study

Capstaff et al., (1995) analysed financial analyst's forecasts of earnings spanning nine European countries and concluded that analyst's forecasts have a tendency of being positively biased in developed markets. They also concluded that between the countries, there were observable difference in bias within the countries. This difference could have been attributed to disparities in the behaviour of earnings, the influence of the securities market, and accounting practices in the countries. Jaggi & Jain (1998) try to assess the accuracy and potential bias of analysts' forecast for Hong Kong specific companies and they also found that there is optimistic bias in forecasts. They also concluded that short-term forecasts return better accuracy than long-term forecasts, they also discovered that the level of precision of forecasts is influenced by firm size.

Ahmed et al., (2017) in their study investigate the part analyst earnings forecasts play in the Tunisian market and how the market`s dependence on analysts` forecasts grow with time. They concluded that in an emerging market setting such as Tunisia, analysts' forecasts accuracy

should increase with time as analysts` experience for market forecasting increase, and that market reliance on analysts' forecasts should also increase as investors become more sophisticated. Past studies such as Chang et al., (2000) found that the accuracy of earnings forecasts across markets was lower in emerging markets than in developed markets. (Firth & Gift, 1999) found that emerging markets have lower accuracies than developed markets, although the difference is not large. Would this still be the status-quo after over 20 years of improvement in emerging market efficiency?

In recent times there are few studies that have addressed the following: examining the accuracy of the forecasts the analysts in emerging markets as a comparison to developed markets; identifying the key factors that influence forecast accuracy in emerging markets and developed markets; establishing if the identified factors apply in both emerging and developed markets. This paper will address this gap and establish if an improvement in emerging market efficiency has led to improved forecast accuracy.

1.6 Benefits of the study

The current study would help investment managers, analysts, investors, and any other stakeholders that make use of financial data to make informed long-term and short-term investment decisions. They will also benefit by understanding to what extent economic conditions affect accuracy of earnings forecasts and what other factors might influence earnings accuracy in emerging markets.

There is a growing interest in emerging markets in emerging markets. Investors and investment managers are always looking for different markets and asset classes to allocate their funds. This study will help them to understand the underlying structures in both emerging and developed markets and how they compare against each other. Emerging markets are known to be volatile markets and by understanding how analysts' earnings forecasts in emerging markets compare to earnings forecasts in developed markets they will be able to make sound investment decisions that will yield them the maximum possible returns.

Analysts will benefit from this research by understanding the different firm specific and macroeconomic factors they should focus on within their different markets (i.e., emerging or developed), to produce accurate forecasts. This study looks at the effect of GDP Growth Rate (macroeconomic factor) on analysts forecast.

1.7 Structure of the thesis

This research paper consists of five chapters. Chapter 1 discusses the research background, including the research questions and objectives. It also discusses the research problem and the benefits of the study. Chapter 2 reviews existing literature within the body of knowledge that is related to the study. Hypothesis development is also discussed in the chapter. Chapter 3 presents the methodology of the study including data, data sources and research design. Chapter 4 presents the research results. Lastly chapter 5 discusses the results, further recommendations and concludes the research.

Chapter summary

This chapter gives an introduction of the study background into the research area. It also highlights the research problem and identifies the research objectives and research questions flowing from the research problem. The significance and benefits of the study are discussed.

CHAPTER 2

THEORETICAL AND EMPIRICAL LITERATURE REVIEW

2.1 Introduction

This chapter reviews extant literature that are relevant to the current research. This chapter is organised as follows. Section 2.2 presents the theories underpinning this research. These theories are linked to the current research. Section 2.3 reviews the empirical literature relevant to the current research. Chapter summary concluded the chapter.

2.2 Theoretical Underpinnings

2.2.1 Random walk theory

This theory hypothesises that successive movement in security prices are independent and due to random unpredictable events. “The theory implies a series of stock price changes has no memory which means that any history of the series cannot be made use of to predict future prices in any meaningful way” (Fama, 1995). “The future price of that security is no more predictable than the path of a series of cumulated random numbers” (Fama, 1995).

2.2.2 Market efficiency theory

Efficiency in finance refers to a market where the price of financial assets incorporates all relevant information (Dimson & Mussavian, 1988). “A market is said to be efficient when there are many rational, profit-maximizing individuals actively competing with one another to estimate future market values of specific assets and when crucial present information is practically completely accessible to all participants” (Fama, 1965). Malkiel (1989) claims that, “a capital market is efficient if it accurately and fully reflects all pertinent information in establishing asset prices.”

Investors react instantly to any readily available information to them which in turn eliminates any profit opportunities. In simple terms, “security prices will always reflect the information that is available to investors and no profit may be made from information based on trading” (Lo & MacKinley, 1999). The actual price of securities in efficient markets at a given time is a good estimate of its intrinsic value (Fama, 1965).

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2.2.3 Capital asset pricing theory

This theory describes how expected return relates with risk for assts, particularly stocks. It states that “the anticipated return of a stock is equivalent to the risk-free rate plus a risk premium, which is correlated to the stock's beta (a measure of its volatility relative to the market)” (Sharpe, 1964). The CAPM is used to define the cost of equity for a company and is a key component of modern portfolio theory (Sharpe, 1964).

The main theory that underpins the study use of market efficiency theory as it can be interpreted that analyst`s earnings forecasts are not necessarily more accurate than any other publicly available information, due to the availability of relevant information publicly being reflected in the securities market prices. Therefore, in relation to this study the interpretation would be that analysts` forecast prices cannot beat an efficient market and provide accurate forecasts.

2.3 The empirical literature review

2.3.1 The role of financial analysts

The two categories of financial analysts are "sell-side" and "buy-side". Sell-side analysts work in the equities research divisions of investment banks and buy-side analysts work for fund management companies. Buy-side analysts more times than not rely on sell-side analysts’ reports to assess the management of their company’s portfolios since sell-side analysts’ reports tend to be publicly available information. Reports extracted by buy-side analysts are also compiled into reports which are then used by the employer to make investment decisions (Iman & Spence, 2016).

Investment analysts play a crucial role as financial mediators by bridging information gaps between corporations and investors (Clatworthy & Lee, 2018). Easley et al., (1998) state that financial analysts play the role of discovering and conveying information to the market. Through their appraisal and tracking efforts, investors can use this information to increase market liquidity, ensure effective capital allocation, and boost investor trust (Beyer et al., 2010). It is stated that the information assists in highlighting potential investment opportunities for investors.

Capital markets are dependent on a wide information pool that is not directly or easily accessible to investors. It is the financial analysts` duty to gather this information as well as interpreting it. The interpretation of this information involves a repetitive process of clarification and provision of high-level opinions in response to issues that may have been raised through public discourse. The repetitive process involves the comparison of information with objective benchmarks and quantitatively assessing the management's objective statements as done in other studies (Huang et al., 2018).

Analysts' must keep pace with the development of the companies to produce reliable reports (Song & Chu, 2017). The analyst coverage includes initial cover, results notes, earnings, sector, or industry updates. Financial records aren't always enough to predict a company's profit and therefore other sources of information are considered. The integrity of the analysts' assessment is vital (Kim, et al., 2017). Earning projections and stock recommendations are the two main products of financial analysts, and both have been extensively researched (Loh & Mian, 2006). Additionally, financial specialists set the target prices for the equities, which are extensively used as a benchmark in the capital markets (Kothari et al., 2016).

While it is not easy to predict stock price movements and future earnings estimates, the experienced research analysts' report can provide investors with above-average risk adjusted returns (Song & Chu, 2017). Bonini et al., (2010) argue that earnings estimates should reflect the analyst's best insights of a company's "intrinsic value" at or around the publication date. Palmier et al. (2018) posits that analysts cannot be held personally liable for their evaluations and projections. Due to the unpredictable nature of the environment they work in, even a thorough analysis may turn out to be incorrect because of unanticipated occurrences like financial market instability such as in a case of the 2008 financial crisis, or a business scandal such as the Volkswagen emissions scandal.

Regardless of the complexity or subjectiveness of analysing stocks or their earnings estimate, it serves the analysts' best to provide results that are as close to being accurate as they possibly can be. This is mainly because analysts' remuneration, which is primarily dependent on the quality of their work, determines their year-end bonuses and their career trajectory. These bonuses reflect many factors outside company profitability, with trading volume generated mainly for sell-side analysts and forecast accuracy mainly for buy-side analysts being primary

contributors (Fogarty & Rogers, 2005). Evidence has proven that financial analysts with higher accuracy are better compensated in their bonuses (Dreman & Berry, 1995).

2.3.2 Analysts' earnings forecast accuracy

The accuracy of analysts' earnings forecast accuracy is crucial. Investors determine the intrinsic worth of the company and choose which investments to make using the analysts' predictions in the valuation model (Lin & Lin, 2017). Kothari et al., (2016) show that the number of firms an analyst tracks, their skill level, the complexity of their portfolios, and the resources they have access to are some of the factors that are linked to the accuracy of their earnings forecasts. Other factors include forecast age, frequency, and specialisation. He et al., (2020) argue it is difficult to forecast earnings accurately for firms that practise tax avoidance. Analysts are less likely interested in covering such firms as they have a high risk of resulting in inaccurate forecasts. Minton et al., (2002), found that forecast models that include volatility as part of their variables provide forecasts that are more accurate and contain less bias. Analysts' earnings forecasts are based on grounded in trends in the historical financial figures of a firm, versus basing them on the financial report for a particular year (e.g., Bradshaw et al., 2014; Palepu et al., 2016). Brown et al., (1987) investigated, "if company characteristics result in superior forecasts, with controlling for the timing advantage. They conclude that the size of the company and the prior dispersion in forecasts has a significant impact on superior forecasts." The knowledge imbalance between investors and management is hampered by political ties. To counter the negative impact of political links on the accuracy of an analysts' forecast, anti-corruption measures may be required. Zhang & Rahman (2019) found that firms with political ties reported poorer forecast accuracy. Huang & Wright (2015) studied 1,298 companies in China over a seven-year period between 2004 and 2011 found that the higher the state ownership in Chinese companies, the more optimistically inaccurate were analysts' forecasts. This is corroborated by Zhang's (2011) study, which shows that media outlets have consistently questioned the reported earnings of financial experts from China. The research also uncovered a pattern of Chinese financial analysts cheating investors to benefit connected institutional investors. Jiang (2004) further found that "Chinese financial analysts have often faced suspicion and criticism", which in turn results in their forecast earnings not being very credible.

Analysts' forecast accuracy may decrease due to uncertainty associated with the complex factors and volatile characteristics in earnings and returns and when firm performance is transitory (Kothari et al.,2016). Brown & Mohd (2003) also highlights that forecast horizon affects forecast accuracy in that it is much difficult to forecast a more distant firm performance. Analysts' forecasting accuracy is significantly influenced by their level of experience. Maines et al., (1997) show that an analyst's level of accuracy rises with experience. Forecasts made by analysts with vast experience were inherently more accurate than those made by less experienced ones. Clement (1999) also found that, "forecasting accuracy rises as experience increases (a proxy for skill) and employer size (a proxy for resources available) and declines with the number of enterprises and industries monitored (a portfolio complexity's proxy)."

Kothari et al., (2016) investigated the correlation between compensation incentives and the motivation of analysts in the provision of accurate forecasts. The study discovered a positive correlation between the accuracy of forecast and an Investor's Institutional "All-Star" status. This status is then likely to affect analysts' pay and career progression (e.g., Stickel, 1992; Groysberg et al., 2011). By utilising compensation data that is proprietary from large investment banks, Groysber et al., (2011) demonstrate that, "analysts are predominantly rewarded for their capacity to attract investment banking business, the size of their coverage portfolio, and their status as an "All-Star" show a sturdy correlation between the accuracy of analysts and other career outcomes, despite there being no data on accuracy's impact on the compensation package of analysts." (Mikhail et al., 1999 ; Hong et al., 2000 ; Wu & Zang, 2009 ; Groysberg et al., 2011). For instance, Groysber et al. (2011) use secret remuneration data from a reputable investment bank to demonstrate that ineffective analysts are more likely to lose their jobs at prestigious institutions or to leave the Institutional Brokers' Estimate System (I/B/E/S) database. Even so, evidence of is yet to be presented of a correlation between accurate forecasts and compensation. The data shows that small accuracy errors have little impact on analyst pay, but large (negative) forecast flaws can lower analyst wealth by increasing the chance of termination. Ultimately, it appears that firm characteristics including the risk profile of its investments, the firm's size, and transient shocks have an impact on forecast accuracy. The forecast accuracy does not appear to be affected by analyst-specific attributes because analysts can freely access the projections of other analysts.

2.3.3 Forecast bias

Evidence of different origins of bias in the projections and earnings of analysts, and recommendations are well recorded. (Michaely & Womack, 1999; McNichols & O'Brien, 1997; Groysber et al., 2011). The information provided by management or by the analysts of their own economic motivators could be the source of bias. The bias in the forecast varies over the cross-section and over the forecast horizon, in which case long-term forecasts are often optimistic and short-term forecasts are overly pessimistic.

Cross-sectional variation in analyst bias is brought on by a range of economic motivations that analysts face. For instance, analysts may receive compensation for positive coverage of deals that their organisation underwrites in exchange for retaining current underwriting clients or maybe luring in new ones. Akin to this, analysts may acquire favour with management by overstating their profitability projections to be granted access to sensitive data. In both situations, the need for a positive working relationship with management may drive analysts to make overly optimistic estimates. This perception led a large portion of the literature to study the extent to which analysts' motivations to please management and create profits for investment banks can account for the positive bias in their projections.

By making predictions that align with managers' preferences, analysts aim to obtain access to management. This has been frequently noted as a cause of bias. By studying companies with unfavourable buy/sell recommendations, Francis & Philbrick (1993) found that analysts who fail to make a recommendation are more likely to make upbeat profit predictions. This finding is interpreted by the study as proof that analysts produce biased forecasts in an effort to set themselves apart from other analysts who had previously made unfavourable recommendations and in the hope of being granted access to management for a "*quid pro quo* arrangement." Das et al., (1998) found that, "analysts make more positive profits projections for companies with less predictable earnings." This result was seen by the study as evidence that analysts inflate their profits projections when earnings are less predictable in order to acquire access to management's private information. Subsequent research revealed that analysts with affiliations consistently exhibit higher levels of overconfidence than those without affiliations. (Hunton & McEwen, 1997; Lin & McNichols, 1998; Michael & Womack, 1999; Dechow et al., 2000; Agrawal & Chen, 2008).

Westphal & Clemnt (2008) demonstrate that managers utilise their ties with analysts on a personal level to discourage them from sharing unfavourable information. This implies a cooperative relationship in which managers and analysts do favours for one another. Brochet et al., (2014) demonstrates that analysts start covering companies more frequently when they have a history of working with the management of those companies, and that these histories are linked to improved forecast accuracy. These studies collectively imply that "social and professional networks" can affect analysts' outputs while also jeopardising their integrity.

Even though there are financial incentives for analysts to exaggerate their predictions, we would normally anticipate countervailing forces, such as concerns about their reputation, to keep such bias in check. According to several studies, there is insufficient evidence that skewed estimates lead to more lucrative investment banking deals for the firms that employ the analysts. (Krigman et al., 2001; Cowen et al., 2006; Ljungqvist et al., 2006; Clarke et al., 2007; Kothari et al., 2016). However, these findings suggest that analysts are driven to provide objective, accurate projections because they care about their status as trustworthy information sources. Furthermore, managers' inclination for optimistically skewed projections appears to be influenced by the circumstance or the time of day. For instance, it can be more challenging to surpass optimistic profit projections, and research indicates that managers should prioritise hitting or exceeding expectations (Burgstahler & Dichev, 1997; Degoerge et al., 1999; Brown, 2001; Kasznik & McNichols, 2002; Matsumoto, 2002; Bartov et al., 2002).

2.4 Differences between emerging and developed markets

Hoskisson et al., (2000) describe an emerging market country as one that is known for having a "low per capita income and a rapid pace of economic development, liberal economic policies (and government), and an economy based on free market principles." Harvey (1995), states that emerging market equities are not completely integrated with developed markets. Complete integration is defined as having two assets with different markets having the same expected returns. This suggests the existence of arbitrage opportunities between emerging and developed markets. Factors that lead to lack of complete integration include "investment restrictions, taxes, foreign exchange regulations, the availability and the accuracy of accounting information, the number of securities that are cross listed, political risk, the market liquidity

and the institutional structures that protect investors" (Harvey, 1995). These factors lead to experiences in asset returns and the risk exposure being significantly different in emerging markets in comparison to developed markets. Stock returns in emerging markets have been stated to hold possibility of higher returns than developed markets (Carvahal & de Melo Mendes, 2014). Allen et al., (1997) found that earnings forecasts in Asian emerging markets have been less accurate and quiet over optimistic as compared to earnings forecasts for developed markets. According to the findings of the same study, forecast error rates are typically lower in nations with more developed capital markets.

Brunner et al., (2002) state that "there is no clear 'best practice' for the valuation of assets and securities in emerging markets which in turn increases the complexity of producing earnings forecasts for securities." They also state that emerging markets have more observable differences as compared to developed markets in areas such as liquidity, volatility, governance, transaction costs, taxes, and accounting transparency. This could lead to deviations in the extent of bias or deviation from the forecast since asset prices are also influenced by the mentioned factor.

2.5 Economic conditions

To forecast earnings, an analyst must also take into consideration issues around the environment the firms operate. Chopra (1998) concluded that how accurate the forecasted earnings of an analyst are will increase in a rapidly growing economic scenario. Conversely, the analyst`s earnings forecast errors will increase in a low-growth economic scenario. Hope & Kang (2005) found that uncertainties at a macroeconomic level often associates correlate negatively associated with the precision of an analysts' forecasts. Following an analysis focused on how global competitiveness rankings by the World Economic Forum (WEF) correlate with analysts' forecasts, Black & Carnes (2006) observed a "positive correlation between the two. Walther & Willis (2013) observed a positive correlation when the financial analyst forecasts and the "fundamental" component related to underlying economic factors (FUND) are compared, and a negative correlation when financial analyst forecasts and the "sentiment" component unrelated to underlying economic factors (SENT) are compared. Evidence used in the study suggests a higher accuracy in forecast when FUND is higher, and a lower accuracy in forecast when SENT is higher." This study investigates the effect GDP growth rate has on earnings forecast accuracy in both emerging and developed markets.

2.6 Hypothesis development

Based on the above literature review, the study will be investigating the following hypotheses:

Hypothesis 1

$H_{1:}$ Earnings forecasts are more accurate in developed markets than in emerging markets.

Hypothesis 2

H_1: The factors that influence analysts forecasts accuracy in emerging markets vary significantly from those in developed markets.

Chapter summary

This chapter has discussed the empirical literature that is related to the study as well as the underpinning theory of the study. Finally, the different hypotheses of the study are outlined.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology applied in this study to answer the research questions and to achieve the research objectives outlined in Chapter 1. The chapter is organised as follows. Section 3.2 presents data and data sources. Section 3.3 discusses the research design. Chapter summary concludes the chapter.

3.2 Data and data sources

The sample included data from five emerging economies and five developed economies. The emerging market countries are represented by Brazil, South Africa, Russia, India, and China while the United States of America (USA), United Kingdom (UK), Germany, Japan, and Singapore represent developed economies. These countries were selected in terms of their size within their respective blocks. For emerging markets the BRICS countries were taken as they represent a large amount of emerging markets. For developed markets the top 4 within the G7 block were selected as they represent a large amount of developed markets. From all these countries, 50 equities of the top performing companies were analysed over a period starting from 2008 to 2021 to see any effects from the financial crisis. The sample for data contained over 3000 distinct data points with the data weighted predominantly towards the developed markets. Analysts forecasts data was collected from Bloomberg. The World Bank database was used to gather information about the GDP growth rate.

Table1 below present the number of observations per country

Table 1:Number of observations per country

Country	**Observations**	**Percent**
	Panel 1	
South Africa	246	19.32
India	291	22.86
Brazil	267	20.97

China	247	19.40
Russia	222	17.44

Panel 1 shows observations per country in emerging markets and the weighting of each country in the market.

Panel 2		
UK	418	24.08
Germany	307	17.68
Japan	520	29.95
Singapore	79	4.56
USA	412	23.73

Panel 2 shows observations per country in developed markets and the weighting of each country in the market.

3.3 Research Design

This study adopts quantitative research design in investigating the accuracy of analysts` earnings forecasts in emerging markets. Quantitative research is explaining phenomena based on numerical data. These phenomena are analysed using mathematical methods, chiefly statistics (Yilmaz, 2013). A further definition is, a version of empirical research that investigates a particular social phenomenon through the testing of a theory that consists of variables measured numerically and subsequently analysed statistically to determine an explanation or prediction of the phenomena of interest grounded in the posited theory. (Creswell, 1994; Gay & Airasian, 2000).

3.3.1 Measuring analysts' forecast bias

The first part of this research investigates the differences in earnings forecasts in emerging and developed countries. The distributions of the EFE are expected to be centred around zero for both populations. To test for bias, we must prove that EFE is different from zero. To test whether there is difference in bias between the two regions a difference of emerging markets and means is expected to be zero if the differences to zero This is accomplished by comparing the company's annual actual earnings to the average annual forecasted earnings. The following model is used - the model was developed by Black & Carnes (2006)

$$\text{EFE} = \frac{ACTEPS - FCTEPS}{ACTEPS} \qquad (1)$$

Where EFE is the earnings forecast error. ACTEPS is defined as the earnings per share of a company. FCTEPS is the most recent mean forecasted earnings per share for each firm-year.

3.3.2 Measuring accuracy of analysts' forecasts

The second part of the research investigates and compares the accuracy of analysts' earnings in emerging and developed markets - the model was adopted from Black & Carnes (2006). The objective of this regression model is to test if α_6*Region coefficient is statistically different from zero. If its diff from zero and positive, emerging markets have lesser forecast accuracy. If its diff from zero and negative developed markets have lesser forecast accuracy. If zero, then there are no sig differences in forecast accuracy.

$$\text{EFEABS} = \frac{|ACTEPS - FCTEPS|}{|ACTEPS|} \qquad (2)$$

Where EFEABS is the absolute earnings forecast error.

$$EFEABS = \alpha_0 + \alpha_1 * MarketCapitalisation + \alpha_2 * DA + \alpha_3 * TotalAnalyst + \alpha_4 * PB + \alpha_5 * GDPGrowth\ rate + \alpha_6 * Marketcapitalisationoflisted + \alpha_7 * Region + e \quad (3)$$

Where: EFEABS is the absolute forecast error. Market capitalization is the natural log of market value of equity – which is the size variable, DA is the debt-to-asset ratio , Total Analyst is the natural log of the number of analysts who forecast annual earnings , PB is the price to book ratio, GDP Growth Rate is refers to the rate at which a country's economy is growing or reducing by. This is sum of market capitalisation of listed domestic companies This is the variable that asses the macroeconomic environment in the regression, Region is 0 for emerging or 1 for developed markets.

3.3.3 Determining factors influencing analysts' forecast

The third part of the research investigates the factors that influence analysts` earnings forecast in emerging and developed markets. It also investigates if the factors are different for the two markets - the model was adopted from Black & Carnes (2006).

A regression conditioned on Region is run to test the differences in firm specific factors and macroeconomic factors` impact on forecast accuracy.

$$EFEABS|Region = \alpha_0 + \alpha_1 * MarketCapitalisation + \alpha_2 * DA + \alpha_3 * TotalAnalyst + \alpha_4 * PB + \alpha_5 * GDPGrowth\,rate + \alpha_6 * Marketcapitalisationoflisted + \alpha_{7-10} * \sum Country + e \quad (4)$$

Where: EFEABS is the absolute earning forecast error, Market capitalization is the natural log of market value of equity – which is the size variable, DA is the debt-to-asset ratio , Total Analyst is the natural log of the number of analysts who forecast annual earnings , PB is the price to book ratio, GDP Growth Rate is refers to the rate at which a country's economy is growing or reducing by. This is the variable that asses the macroeconomic environment in the regression, Country is the country indicator dummy variable, which takes values of 0 or 1.

3.3.4 Definition of variables

The table below presents the variables used in this study and explains how each variable is measures as well as the expected sign in the regression model.

Table 2:Defining variables

Name of a variable	Definition	Measurement	Expected sign
Market Capitalisation	This refers to the size of the company in USD.	Multiplying the total number of outstanding shares by the share price	Negative
DA	This is a company's debt to asset ratio. This is also seen as a gauge of the firm's financial leverage and adaptability.	Consists of total assets, divided by total debt.	Negative
Total Analyst	This is the number of analysts who predict the annual earnings of a particular company for each year.	Includes every analyst who submits a forecast for a certain company.	Negative
PB	The market worth of the company divided by the assets listed on the balance sheet is known as the price to book ratio. Low price	Stock Price, divided by Book Value.	Negative

	to book value may suggest that a company is undervalued, while the opposite may be true. Nonetheless, this is not always the case.		
GDP Growth Rate	This refers to the rate at which the economy is growing, in USD. This serves as the macroeconomic factor in the study.	Real GDP between the most recent year`s GDP and the prior year`s real GDP, divided by the prior year`s Real GDP.	Negative
Region	This is the region dummy variable in which a company falls under. A company can either be developed or emerging	0, emerging or 1, developed	
Marketcapitalisationoflisted	This is sum of market capitalisation of listed domestic companies		
Country	Country is the country indicator dummy variable, which takes values of 0 or 1		

3.4 Validity and reliability

"Validity is concerned with understanding if the findings are about what they appear to be about (Saunders et al., 2019). It establishes whether the research has measured what it was intended to measure and how truthful those results are (Golafshani, 2003).

Reliability is used to evaluate or test research. Research is Intended to understand more about a phenomenon or idea, and it is necessary that information gathered during the process of understanding is qualifying and of an acceptable level of quality. This is where reliability comes in, as it is a measure that is used to test the quality of the data or information that is collected. This evaluation is necessary for quantitative data as data gathered using quantitative methods seek to explain the subject of the research (Golafshani, 2003). Reliability also refers to dependability or the degree to which a research tool consistently measures a particular variable each time it is used to similar contexts with the same individuals. Researchers can assess the extent to which their instruments create reliable data by examining several perspectives or techniques (Yilmaz, 2013). Reliability is core to the quality of research as it serves as a way for the audience to understand or to be persuaded by the result of the research (Golafshani, 2003).

Reliability is ensured by making sure that if this research is conducted by a different researcher, they will still come to a similar conclusion, provided they have followed the exact process.

3.5 Ethical considerations

This study is quantitative in nature, it did not involve any contact with humans and animals during the data collection and analysis process. Therefore, ethical requirements on human and animal contact were not required. However, the ethical requirement of Wits University regarding quantitative data analysis was strictly complied with. Ethical clearance was granted by the ethics department of the Wits Business School.

Chapter summary

This chapter looked at the research design and described the data that was used in this paper and its sources. The sources of the data were also explained. The models chosen to undertake this study was elaborated in detail.

CHAPTER 4

RESEARCH RESULTS

4.1 Introduction

This chapter presents the findings of the study. The chapter is organised as follows. Section 4.2 presents the descriptive statistics and the regression diagnostics tests. Section 4.3 presents the results of the study.

4.2 Descriptive statistics

Table 3:Descriptive statistics – Emerging Countries

Country/ Variable	Market Capitalisation	Total Analyst	PB	GDP Growth Rate	DA	EFE	Market capitalisationof listed	EFE ABS
Brazil								
Mean	9.24	2.71	2.27	1.529	32.27	0.064	11.98	0.192
Median	9.05	2.77	1.71	1.8	33.42	0.075	11.78	0.139
Std. dev	1.23	0.36	1.66	3.239	14.46	0.257	0.13	0.182
China								
Mean	11.04	3.08	2.90	7.557	13.33	-0.016	12.75	0.067
Median	11.21	3.14	1.74	7.4	11.79	-0.008	12.78	0.038

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Std. dev	1.231	0.47	3.11	1.994	11.13	0.112	0.23	0.091
India								
Mean	9.528	3.60	5.64	5.727	17.86	0.029	12.23	0.121
Median	9.666	3.69	3.34	6.5	13.17	0.012	12.10	0.059
Std. dev	1.027	0.44	9.10	3.672	16.07	0.213	0.15	0.178
Russia								
Mean	9.595	2.38	2.26	1.264	25.32	-0.003	11.83	0.174
Median	9.633	2.48	1.23	1.8	21.73	0.018	11.50	0.097
Std. dev	1.359	0.62	3.98	3.578	14.75	0.265	0.11	0.200
South Africa								
Mean	8.674	2.26	3.81	1.322	16.15	0.004	11.95	0.178
Median	8.685	2.4	2.81	1.5	13.64	0.034	11.80	0.116
Std. dev	0.98	0.52	2.9	2.643	13.38	0.257	0.09	0.186

The table above shows descriptive statistics for emerging countries. The table allows us to compare the central tendency and dispersion of each variable across the different countries. For instance, we can see that India has the largest mean GDP growth rate whereas China has the largest mean market capitalization.

Table 4:Descriptive statistics – Developed Countries

Country/ Variable	Market Capitalisation	Total Analyst	PB	GDP Growth Rate	DA	EFE	Marketcapitalisationoflisted	EFEABS
Germany								
Mean	9.96	3.39	2.32	1.049	19.46	0.050	12.23	0.175
Median	10.04	3.43	1.96	1.5	17.49	0.034	12.50	0.100
Std. dev	1.10	0.30	1.54	2.596	15.85	0.259	0.10	0.197
Japan								
Mean	10.21	2.84	1.97	0.218	19.88	0.015	12.66	0.121
Median	10.24	2.83	1.51	0.8	18.72	0.003	12.70	0.082
Std. dev	0.66	0.23	1.35	2.462	16.54	0.179	0.11	0.133
Singapore								
Mean	9.54	3.01	1.46	4.19	22.84	0.071	11.80	0.124

Median					15.58		11.92	
	9.95	3.04	1.30	3.9		0.022		0.053
Std. dev	1.11	0.23	0.57	3.888	15.19	0.196	0.12	0.168
UK								
Mean	9.88	3.04	3.92	0.997	23.58	-0.073	12.51	0.239
Median	9.99	3.09	3.04	1.8	23.04	-0.056	12.60	0.156
Std. dev	1.22	0.37	2.96	3.963	14.02	0.330	0.08	0.239
USA								
Mean	11.73	3.27	7.05	1.66	22.37	0.081	13.38	0.176
Median	11.91	3.33	3.81	2.3	20.91	-0.010	13.45	0.093
Std. dev	1.00	0.44	14.85	2.15	13.74	0.257	0.16	0.205

The table above shows descriptive statistics for developed countries. The table allows us to compare the central tendency and dispersion of each variable across the different countries. We observe that the UK has the highest mean value for the PB variable (3.922), while India has the highest mean value for the GDP growth rate variable (5.727). The USA has the highest mean value for the EFEABS variable (0.176), indicating that US based companies show more variability in analysts' earnings forecasts.

4.2.1 Outliers

Figure 1:pb

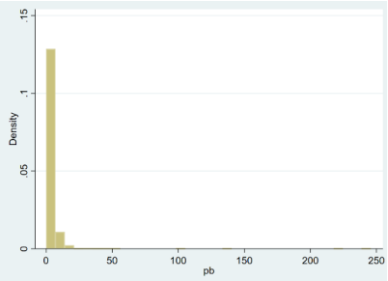


Figure 1 shows the presence of outliers for the variable PB

Figure 2: PB

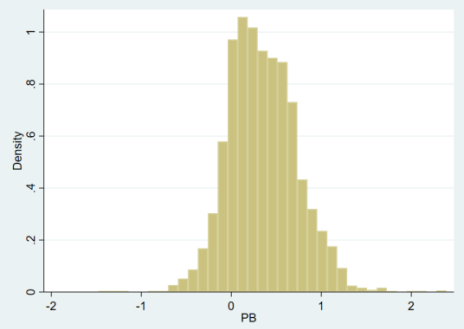


Figure 2 shows PB after correction for outliers has been done, this is done by logging the variable. All variables that had outliers were logged in order to eliminate those outliers.

4.2.2 Multicollinearity

Table 5:Testing for Multicollinearity - Emerging

Variable	VIF	1/VIF
Market Capitalisation	1.82	.558

Total Analyst	2.52	.396
PB	1.20	.834
GDPGrowthRate	1.66	.603
DA	1.20	.832
Marketcapitalisationoflisted	6.10	.164
Country_category		
2	6.51	.154
4	3.12	.321
6	1.82	.550
8	1.76	.569
Mean VIF	2.77	

Table 5 shows results of a vif test for multicollinearity for factors influencing analyst forecasts in emerging markets. The results show a mean vif of2.77 indicating no presence of multicollinearity

Table 6:Testing for Multicollinearity - Developed

Variable	VIF	1/VIF
Market Capitalisation	2.18	.459
Total Analyst	1.73	.578
PB	1.31	.763
GDPGrowthRate	1.09	.913
DA	1.07	.934
Marketcapitalisationoflisted	18.76	.053
Country_category		
5	5.65	.177
7	1.98	.504
9	3.39	.295
10	20.83	.048
Mean VIF	5.80	

Table 6 shows results of a vif test for multicollinearity for factors influencing analyst forecasts in developed markets. The results show a mean vif of 5.80 indicating no presence of multicollinearity.

For all the regressions in the study, a vif test for multicollinearity is conducted and there is no presence of multicollinearity in the data. Detailed results of these can be found in appendix I

4.2.3 Testing for normality of residuals

A skewness and kurtosis test for normality is conducted to test for normality of residuals

Table 7: Normality of Residuals

Skewness and kurtosis tests for normality

				Joint test	
Variable	Obs	Pr(skewness)	Pr(kurtosis)	Adj chi2(2)	Prob>chi2
resid_log_efeabs	3,238	0.0234	0.0000	65.59	0.0000

Table 7 shows results from testing for normality. The test has a p value of .000, indicating that the residuals are not normally distributed. Hence, we reject the null hypothesis of presence normality ($p<0.05$).

4.2.4 Testing for heteroscedasticity

The White test for heteroscedasticity has the following hypothesis:

H_1: Unrestricted heteroscedasticity

Table 8: Heteroscedasticity

Source	Chi2	df	p
Heteroskedasticity	124.67	55	.000
Skewness	16.62	10	.000
Kurtois	25.55	1	.000
Total	166.84	66	.000
Prob > chi2 = .000			

In the above table prob > chi2 = .000, hence we reject the null hypothesis. There is presence of heteroscedasticity, according to Damodar, (2004) a correction for heteroscedasticity is to add robust standard errors in the regression also known as White` heteroscedasticity-corrected standard errors. This paper makes use of standard robust error. As an additional robust check GLS was run and the results are the same, thus the impact of heteroscedasticity of residuals is negligible.

4.3 The analysts' earnings forecast accuracy in emerging and developed markets

Table 9: Accuracy of analyst` forecasts

EFEABS	Coefficients	Robust Std. Error	t-value	p-value
Market Capitalisation	-.977***	.012	-7.90	0.000
Total Analyst	.007	.026	.29	0.769
PB	-.197***	.037	-5.38	0.000
GDPGrowthRate	-.050***	.004	-5.97	0.000
DA	.048***	.020	10.59	0.000
Marketcapitalisationoflisted	.049	.040	1.24	0.215
R_id	.141***	.033	4.22	0.000
_cons	.-812***	.434	-1.87	0.062

Statistically significant at: *** $\alpha < 1\%$, ** $\alpha < 5\%$, ** $\alpha < 10\%$

The table above is shows results of a regression used to check the accuracy of analysts` forecasts by region. We see that a change from emerging (r_id =0) to developed (r_id =1) there is 14.1% increase in error. We reject the null hypothesis that earnings forecasts are more accurate in developed markets than in emerging since the p-value is significant at the 1% level. On average developed markets` forecast errors are 14.1% greater than emerging markets`. This contradicts previous studies such as (Firth & Gift, 1999; Allan et., al 1997) who found greater forecasts accuracy in developed markets` compared to emerging as they are more stable environments and there is a lot of publicly available information for analysts to make use of.

4.2.1 Testing for factors that influence analysts` forecasts

Table 10:Factors that influence analyst` forecast

	Developed		Emerging
EFEABS	Coefficients		Coefficients
Market Capitalisation	-.046** (-.085 - .006)		-.131*** (-.164- -.097)
Total Analyst	.077 (-.353 - .189)		-.007 (-.449 -.252)
PB	-.320 *** (-.431 - -.208)		-.351*** (-.449- -.252)
GDPGrowthRate	-.014*** (-.025 - .004)		-.013** (-.024 - -.001)
DA	.133*** (.012 - .590)		.166*** (.010 - .231)
Marketcapitalisationoflisted	.289** (-.012 – .590)		-.164 (-.404- .077)
Country Category			
Japan	-.359*** (-.531- -.187)	China	-.050 (-.286 - .187)
Singapore	-.249** (-.473 -.024)	India	-.046 (-.198 - .107)
UK	.218*** (.079- .356)	Russia	-.046 (-.198- .107)
USA	-.220	South Africa	-.062

	(-.577 - .137)		(-.061 - .185)
Germany		Brazil	
(Baseline)		(Baseline)	
_cons	-4.24		2.21

Statistically significant at: *** α < 1%, ** α < 5%, ** α < 10%

Table 11 presents the findings on the factors that influence analysts' forecasts in emerging and developed markets. The results indicate that Total Analyst is the only factor that is not statistically significant in both emerging markets and developed markets. Marketcapitalisation of listed domestic companies is statically significant in developed markets at the 5% level but not significant in emerging markets. DA is significant in both markets at the 1% level, implying that a higher DA leads to higher errors in both markets. Despite the same signs, the coefficients of the factors within each regression model differ significantly from each other.

The analysis also reveals that Japan and Singapore have 36% and 25% lower EFEABS, respectively, compared to Germany as the baseline in developed countries, and the results are statistically significant. In emerging countries, China has an average 12% lower EFEABS compared to Brazil as the baseline. The results show that there are no differences in the variables influencing analysts' projections in emerging and developed markets, only market capitalisation of listed domestic companies influences in developed markets and not in emerging markets, thus making it possible for us to reject the null hypothesis that these variables are not significantly different between emerging and developed markets

Chapter summary

This chapter looked at the descriptive statistics of the research and present the various regression diagnostics tests i.e., multicollinearity, heteroskedasticity, normality. The results of regression test of the study were also presented.

CHAPTER 5

SUMMARY AND CONCLUSION

5.1 Introduction

The current chapter summarises the research and draw the conclusion of the research. The chapter is organised as follows. Section 5.2 presents the discussion. Section 5.3 outlines the conclusion of the research. Section 5.4 discusses suggestion for further research.

5.2 Discussion

The results of the present research can be divided into two groups. Firstly, the study examines the accuracy of analyst forecasts in emerging and developed markets. In contrast to developed markets, the current study indicated that analysts` estimates are more accurate in emerging markets. This contradicts findings from previous studies such as (Firth & Gift, 1999; Womack, 1996) who concluded that developed markets have more accurate forecasts than emerging markets. The present study's findings may be attributed to the fact through improvement in availability of information that analysts use to make their forecasts the result has been an improvement in terms of market efficiency in emerging markets. Ahmed (2017) found that the accuracy of forecasts in the Tunisian stock market has improved over time due to an increase in analysts' level of expertise and the number of analysts.

The second category of the study explores the factors that influence analysts' forecasts in emerging and developed markets. The results indicate that Total Analyst is the only factor that is not statistically significant in both emerging markets and developed markets. The study found that the Market capitalisation of listed companies in a region is only significant in developed markets but not emerging markets. The study found that Market Capitalisation, PB (price-to-book), DA (debt-to-asset ratio), influences forecasts in both markets. This is

consistent with previous studies by Luo & Xie (2012), who found that the debt-to-asset ratio influences earnings accuracy. The current study found that in emerging markets, all but two of the factors that were investigated have an effect on analysts` forecasts. Total Analyst, Market capitalisation of listed companies in a region are the only factors that are not statistically significant in emerging markets and developed markets. Total Analyst was the only factor that was not significant in emerging markets. Whereas in developed markets, Total Analyst has the most significant effect on analysts` forecasts. However, the findings of this study contradict previous studies by Allen et al. (1997), who found that, "firm-specific factors such as market capitalization and the total number of analysts following a company are key determinants of analysts' forecasts across countries, even if those countries are not within the same markets." Other studies, such as Atiase (1985) and Bhushan (1989), concluded that market capitalization and the total number of analysts are important determinants of forecast earnings. They argue that the larger a firm is, the more accessible information becomes for that firm, and the more analysts will start following that company due to an improvement in the available information. Additionally, the study found that GDP growth rate is significant in emerging and developed markets.

5.3 Conclusion

The present study concludes that there exist differences in the accuracy of forecasts between emerging and developed markets. Emerging markets demonstrate more precise forecasts, potentially due to the recent advancements in their financial markets. The examination of the factors that influence analysts' forecasts at a regional level reveal that only one factor, namely DA, significantly impacts the forecasts. However, other factors that significantly influence forecasts are specific to regions and do not generalize across regions.

The study is subject to certain limitations. Firstly, the use of outdated macroeconomic factors, such as region level rankings from the world economic forum, limited the scope of the study.

Secondly, due to the unavailability of quarterly data for a significant sample from the Bloomberg database, annual earnings data were utilized. The limited literature available on cross-comparisons of factors influencing analysts' forecasts at a regional level was another constraint. Lastly issues relating to double listing of companies were not taken into consideration

5.4 Recommendations for further research

The study found that Market capitalisation of listed companies and Total Analyst are not significant factors in both markets. Market Capitalisation, PB (price-to-book), DA (debt-to-asset ratio), are significant in both markets, however contrary to of literature Total Analyst is not significant in both markets. Further research can be done to investigate why this firm specific factor is not important in both markets. The study also found that earnings forecasts are more accurate in emerging markets compared to developed markets. Further research can also be done to demonstrate how or if there has been an improvement in market efficiency in emerging markets.

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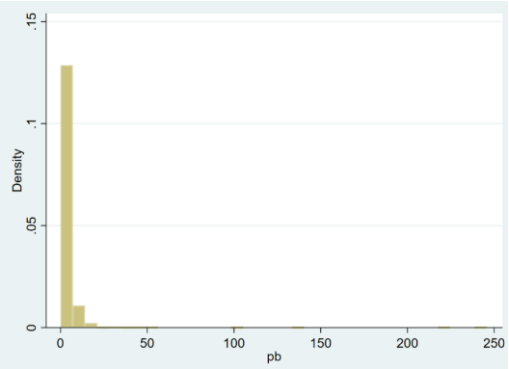
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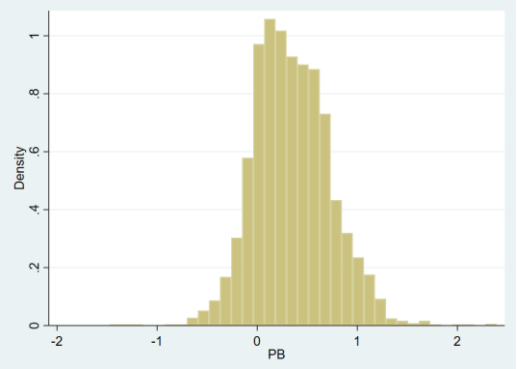
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Appendix

Appendix I

OUTLIERS





Appendix I A: Vif for accuracy of analysts' forecasts

```
. vif
```

Variable	VIF	1/VIF
Marketcapi~d	2.19	0.456833
Marketcap	1.87	0.535590
r_id	1.71	0.585105
Totalanalyst	1.38	0.727225
GDPGrowthR~e	1.23	0.814421
PB	1.10	0.907933
DA	1.02	0.982950
Mean VIF	1.50	

Appendix I B: Vif for factors influencing analysts` forecasts - developed

Variable	VIF	1/VIF
Marketcap	2.18	0.459482
Totalanalyst	1.73	0.578125
PB	1.31	0.762734
GDPGrowthR~e	1.09	0.913307
DA	1.07	0.934266
Marketcapi~d	18.76	0.053302
country_ca~y		
5	5.65	0.176881
7	1.98	0.504185
9	3.39	0.295376
10	20.83	0.048015
Mean VIF	5.80	

Appendix C: Vif for factors influencing analysts` forecasts – emerging

```
. vif
```

Variable	VIF	1/VIF
Marketcap	1.82	0.548375
Totalanalyst	2.52	0.396332
PB	1.20	0.834401
GDPGrowthR~e	1.66	0.602706
DA	1.20	0.832166
Marketcapi~d	6.10	0.164020
country_ca~y		
2	6.51	0.153597
4	3.12	0.320859
6	1.82	0.550274
8	1.76	0.568816
Mean VIF	2.77	

Appendix C: Normality of residuals

Skewness and kurtosis tests for normality

				Joint test	
Variable	Obs	Pr(skewness)	Pr(kurtosis)	Adj chi2(2)	Prob>chi2
resid_log_efeabs	3,238	0.0234	0.0000	65.59	0.0000

Appendix D: Heteroscedasticity

White's test
H0: Homoskedasticity
Ha: Unrestricted heteroskedasticity

chi2(55) = 124.67
Prob > chi2 = 0.0000

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	124.67	55	0.0000
Skewness	16.62	10	0.0832
Kurtosis	25.55	1	0.0000
Total	166.84	66	0.0000

Appendix II

Appendix II B: Accuracy of analyst` forecasts

```
. reg log_efeabs Marketcap Totalanalyst PB GDPGrowthRate DA Marketcapitalisationoflisted r_id, vce(robust)

Linear regression                               Number of obs     =      3,238
                                                F(7, 3230)        =      48.08
                                                Prob > F          =     0.0000
                                                R-squared         =     0.0928
                                                Root MSE          =     .73069
```

log_efeabs	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Marketcap	-.0976958	.0123739	-7.90	0.000	-.1219573	-.0734342
Totalanalyst	.0077466	.0263176	0.29	0.769	-.0438542	.0593475
PB	-.1974241	.0366742	-5.38	0.000	-.2693311	-.125517
GDPGrowthRate	-.0218528	.0036634	-5.97	0.000	-.0290356	-.01467
DA	.2096108	.0197865	10.59	0.000	.1708155	.2484061
Marketcapitalisationoflisted	.049422	.03982	1.24	0.215	-.028653	.1274971
r_id	.1414357	.0334761	4.22	0.000	.0757992	.2070722
_cons	-.8115317	.4344644	-1.87	0.062	-1.663385	.040322

Appendix II C: Factors influencing analyst forecasts - Emerging

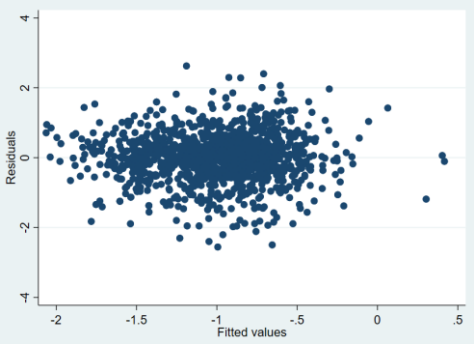
Commented [KC1]: Find out how to do the country category

```
. reg log_efeabs Marketcap Totalanalyst PB GDPGrowthRate DA Marketcapitalisationoflisted i.country_category if r_id==0, vce(robust) //Li
> steddomesticcompaniestotal//

Linear regression                               Number of obs     =      1,330
                                                F(10, 1319)       =      35.37
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2159
                                                Root MSE          =     .66355
```

log_efeabs	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Marketcap	-.1308419	.0170617	-7.67	0.000	-.164313	-.0973708
Totalanalyst	-.0070958	.0411924	-0.17	0.863	-.0879055	.0737139
PB	-.3505121	.05011	-6.99	0.000	-.4488161	-.2522081
GDPGrowthRate	-.0125171	.0058234	-2.15	0.032	-.0239413	-.0010929
DA	.1655015	.0335374	4.93	0.000	.099709	.2312939
Marketcapitalisationoflisted	-.1633968	.1225831	-1.33	0.183	-.4038759	.0770824
country_category						
China	-.0497399	.120428	-0.41	0.680	-.2859912	.1865115
India	-.0457736	.0776437	-0.59	0.556	-.1980922	.106545
Russia	-.0419714	.0624488	-0.67	0.502	-.1644811	.0805384
South Africa	.0619567	.0627884	0.99	0.324	-.0612194	.1851329
_cons	2.211217	1.439393	1.54	0.125	-.6125314	5.034966

Appendix II E: Factors influencing analyst forecasts - Residuals Emerging



Appendix II F: Factors influencing analyst forecasts – Developed

```
. reg log_efeabs Marketcap Totalanalyst PB GDPGrowthRate DA Marketcapitalisationoflisted i.country_category if r_id==1, vce(robust) //Li
> steddomesticcompaniestotal//

Linear regression                               Number of obs     =      1,908
                                                F(10, 1897)       =      25.25
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1090
                                                Root MSE          =     .73448

                                    Robust
log_efeabs                     Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------------------------------------------------------------------------------------------
Marketcap                       -.0457436   .0201018    -2.28   0.023    -.0851675   -.0063196
Totalanalyst                     .0770406    .057305     1.34   0.179    -.0353468     .189428
PB                              -.3196173   .0568108    -5.63   0.000    -.4310355   -.2081991
GDPGrowthRate                   -.0142501   .0053021    -2.69   0.007    -.0246486   -.0038516
DA                               .1327599   .0254138     5.22   0.000     .0829179    .1826019
Marketcapitalisationoflisted     .2889491    .153578     1.88   0.060    -.0122504    .5901487

                country_category
                          Japan    -.35919   .087705    -4.10   0.000    -.5311983   -.1871816
                      Singapore   -.2486061   .1144759   -2.17   0.030    -.4731179   -.0240942
                             UK    .2177543   .0705928    3.08   0.002     .0793067    .3562019
                            USA   -.2199277   .1820235   -1.21   0.227     -.576915    .1370596

                          _cons   -4.241821   1.834465    -2.31   0.021    -7.839601   -.6440404
```

Appendix II G: Factors influencing analyst forecasts - Residuals Developed

