THE DETERMINANTS OF ANALYST FORECASTING ACCURACY IN PAKISTAN

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THE DETERMINANTS OF ANALYST FORECASTING ACCURACY IN PAKISTAN

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LIST OF ABBREVIATIONS

AFA	Analysts' Forecast Accuracy
AL	Analyst Load
BP LM	Breusch-Pagan Lagrangian Multiplier
BRIC	Brazil, Russia, India, and China
CAGR	Compound Annual Growth Rate
CEM	Common Effect Model
CFA	Chartered Financial Analyst
CSR	Corporate Social Responsibility
EOBI	Employees Old Age Benefits Institution
EPU	Economic Policy Uncertainty
ETF	Exchange-traded Funds
GAAP	US Generally Accepted Accounting Principles
GARCH	Generalized Autoregressive Conditional Heteroskedasticity
IBES	Institutional Brokers Estimate System
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commission
IPOs	Initial Public Offerings
ISE	Islamabad Stock Exchange
KATS	Karachi Automated Trading System
KSE	Karachi Stock Exchange
LSDV	Least Square Dummy Variable
LSE	Lahore Stock Exchange
MSCI	Morgan Stanley Capital International
OC	Ownership Concentration
OECD	Organization for economic cooperation and development

PMRAC	Pakistan Markets Regulation Analysts Designation
POLS	Pooled Least Square
PSX	Pakistan Stock Exchange
ROE	Return on equity
SECP	Securities and Exchange Commission of Pakistan
VIF	Variance Inflation Factor
WEF	World Economic Forum

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PENENTU KETEPATAN RAMALAN PENGANALISIS DI PAKISTAN

ABSTRAK

Peranan utama penganalisis kewangan sebagai perantara adalah untuk mengurangkan asimetri maklumat antara peserta pasaran dalam pasaran modal. Pasaran Kewangan di Pakistan adalah tidak cekap dan bercirikan maklumat tidak simetri dan ketidakcairan. Objektif utama kajian ini adalah untuk menyiasat faktor yang mempengaruhi ketepatan ramalan penganalisis kewangan dalam konteks pasaran Pakistan. Kajian ini mengkaji hubungan antara ciri khusus penganalisis (pengalaman Penganalisis kewangan dan kelayakan profesional CFA), ciri khusus firma (pengurusan pendapatan dan penumpuan pemilikan), dan ketidakpastian makroekonomi pada ketepatan ramalan penganalisis. Berdasarkan 109 penganalisis kewangan individu yang meliputi 33 firma bukan kewangan yang disenaraikan secara terbuka di Pakistan dari 2014 hingga 2022, sampel tersebut membawa kepada data panel sebanyak 981 pemerhatian. Metodologi data panel digunakan menggunakan model kesan tetap, kesan rawak dan kesan rawak berkorelasi (CRE-FE Robust) untuk mengambil kira heterogeniti yang tidak diperhatikan dan meningkatkan keteguhan anggaran. Analisis kesederhanaan juga dijalankan untuk menguji kesan interaksi. Kajian telah menggunakan kesan rawak berkorelasi (FE teguh) sebagai teknik penganggaran yang paling sesuai untuk menganalisis data panel. Dapatan kajian ini menunjukkan bahawa kelayakan profesional penganalisis menunjukkan korelasi positif dengan ketepatan ramalan penganalisis.Walau bagaimanapun, pengalaman mereka tidak menunjukkan hubungan yang signifikan dengan ketepatan ramalan penganalisis. Selain itu, keputusan juga menunjukkan bahawa pengurusan pendapatan dan penumpuan pemilikan mempunyai pengaruh negatif dan signifikan terhadap

ketepatan ramalan penganalisis penyelidikan. Akhir sekali, penemuan menunjukkan bahawa ketidaktentuan makroekonomi mempunyai kesan yang besar terhadap ketepatan ramalan penganalisis. Namun begitu, ketidakpastian makroekonomi tidak menyederhanakan hubungan antara pengurusan pendapatan dan ketepatan ramalan. Penemuan memberikan bukti empirikal mengenai teori (Modal Insan, teori agensi, dan asimetri maklumat) yang digunakan untuk ketepatan ramalan pendapatan penganalisis dan penentunya. Hasilnya juga menyerlahkan beberapa implikasi praktikal. Pertama, pengawal selia harus mengukuhkan peraturan untuk mengurangkan manipulasi pendapatan dan meningkatkan ketelusan. Kedua, firma pembrokeran harus lebih menumpukan pada pengambilan penganalisis dengan kelayakan pendidikan yang kukuh daripada hanya bergantung pada pengalaman. Ketiga, pelabur perlu berhati-hati apabila menggunakan ramalan penganalisis, terutamanya bagi firma yang mempunyai pemilikan tertumpu atau semasa ketidaktentuan ekonomi. Akhir sekali, penggubal dasar harus berusaha untuk menstabilkan ekonomi dan menggalakkan tadbir urus korporat yang lebih baik untuk menyokong ramalan yang lebih tepat dan kecekapan pasaran keseluruhan.

THE DETERMINANTS OF ANALYST FORECASTING ACCURACY IN PAKISTAN

ABSTRACT

The main role of the financial analyst as an intermediary is to reduce information asymmetry among market participants in the capital market. The financial market in Pakistan is inefficient and characterized by asymmetric information and illiquidity. The main objective of the study is to investigate the factors that influence the accuracy of financial analysts' forecasts in the context of the Pakistani market. This study examines the relationship between analyst-specific characteristics (analysts' experience and CFA qualifications), firm-specific characteristics (earnings management and ownership concentration), and macroeconomic uncertainty on analyst forecast accuracy. Based on 109 individual financial analysts covering 33 publicly listed non-financial firms in Pakistan from 2014 to 2022, the sample leads to a panel data of 981 observations. A panel data methodology is employed using fixed effects, random effects, and correlated random effects (CRE-FE Robust) models to account for unobserved heterogeneity and improve estimation robustness. Moderation analysis is also conducted to test interaction effects. The study has applied a correlated random effect (FE robust) as the best fitted estimation technique to analyse the panel data. This study's findings show that analysts' professional qualifications shows a positive correlation with analysts' forecast accuracy. However, their experience did not show a significant relationship with the accuracy of analysts' forecasts. In addition, the results also show that earnings management and ownership concentration have a negative and significant influence on the accuracy of financial analysts' forecasts. Finally, the findings show that macroeconomic uncertainty has a significant impact on

the accuracy of analysts' forecasts. Nevertheless, macroeconomic uncertainty does not moderate the relationship between earnings management and forecast accuracy. The findings provide empirical evidence on the theories (human capital, agency theory, and information asymmetry) used for the accuracy of analyst earnings forecasts and their determinants. The results also highlight several practical implications. First, regulators should strengthen rules to reduce earnings manipulation and improve transparency. Second, brokerage firms should focus more on hiring analysts with strong educational qualifications rather than relying only on experience. Third, investors need to be cautious when using analyst forecasts, especially for firms with concentrated ownership or in times of economic uncertainty. Finally, policymakers should work to stabilize the economy and promote better corporate governance to support more accurate forecasting and overall market efficiency.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter provides an overview of this study. It begins by providing a background for this study, followed by a problem statement. To address the problem statement, this chapter outlines the research objectives and questions. This chapter also discusses the significance of this study. The chapter concludes by defining key terms used in the thesis and explaining the organization of the remaining chapters of this study.

1.2 Background of Study

Modern history reflects the growth of finance as a dominant period of financial markets in the world economy. Without financial markets, market participants have difficulty engaging in economic transactions. Financial analysts play a significant role as information intermediaries among financial market participants. Academic researchers scrutinized financial analysts after they found noticeable errors in their earnings forecasts during the 2008 financial crisis(Daniel Arand & Alexander Gabriel Kerl, 2012; Oussama, 2018). As Oussama (2018) reported, the financial crisis contributed to the high resentment of financial institutions, comprising financial analysts, who were identified as one of the main reasons for the financial crisis. Prior research has noted that financial analysts seem biased in their research output, mainly earnings forecasts, during financial crises. For instance, Mora (2013) compared US-based analysts' earnings forecasts before and after the financial crisis 2008 and reported that the study sample results show that 39 percent of the earnings forecasts

were optimists before the 2008 financial crisis. Similarly, Munawer et al. (2012) also suspected the reliability of financial analysts' earnings forecasts. This research area has become a fundamental interest among researchers because of high analysts' forecast errors (in contrast to low forecast accuracy) and intense voices from market participants to put forward strict rules and regulations for checking the accuracy of earnings forecasts (Bagntasarian, 2018).

1.2.1 Financial Analysts' Forecast Accuracy

Considering the importance of financial analysts' earnings forecasts, this study probed the literature on analysts' earnings forecasts. Analysts' earnings forecasts play a vital role among financial market participants. Financial analysts' earnings forecasts facilitate the analysis of public information related to firms and mitigate the information asymmetry between firms and investors (Loh et al., 2006). In addition, Fried and Givoly (1982) established that analysts' earnings forecasts are superior to static time-series model forecasts in terms of timing and information advantage. It is widely acknowledged that analysts' earnings forecasts serve as a crucial source of information for investors when making investment decisions (Schipper 1991; Brown 1987).

Although analysts' earnings forecasts are vital to market expectations, prior studies have documented the presence of errors in analysts' earnings forecasts (Abarbanell, 1991; Ang & Ciccone, 2005; Bagella et al., 2007; Brown, 1993; Kim et al., 2021; Sinha et al., 1997). When analysts' earnings forecasts differ significantly from a firm's actual earnings, a higher error (lower accuracy) in analysts' forecasts can have severe consequences for market investors (Richardson et al., 2004). For instance, Oussama (2018) reports an example of forecast error and market reaction. The

consensus analysts interviewed by Thomson Reuters in 2010 predicted that Palm (a smartphone manufacturer in the USA) would generate $1.6 billion in revenue for the full fiscal year (Oussama, 2018). While revenues for that year were already low relative to the palm's traditional performance, the company announced that its revenues would be well below market expectations ($285 million). The news came as a shock, and the market prices fell by nearly 30 percent. As negative news regarding Palm's future continues to show, some analysts even estimate the share price to be valued at $0, advising investors to sell their shares in Palm. In contrast to the analysts' recommendations, Hewlett-Packard offered to buy palm for $5.7 per share while the trading price was $4. Eventually, the offered price of Hewlett-Packard caused a shock for investors who listened to financial analysts' $0 valuations of the same stock.

In addition, the literature also shows that financial analysts failed to identify in advance various big corporate scandals, such as Enron Corp in 2001, WorldCom Inc. in 2002, and Global Crossing Ltd. (2002), HealthSouth (2003), and Refco Inc. (2005), Lehman Brothers Holding, Inc. (2008), and Satyam Computer Services Limited (2009) (Munawer et al., 2012). Initially, these firms misreported their financial statements. However, these companies later went bankrupt or restated their financial statements, causing losses of millions of dollars for investors.

Despite analysts' diligent skills and the superiority of their earnings forecasts over static time-series models, the abovementioned literature compels researchers to think. It remains an open query related to the factors that cause inaccuracy in analysts' earnings forecasts. The empirical literature, such as Lim (2001) and Loh et al. (2006), suggests various motivations that may influence analysts' earnings forecasts directly or indirectly. The following are primary motivations behind the research on analysts' earnings forecasts i) mainly, the valuation models use earnings forecasts for investors'

expectations. ii) the association of stock returns with analysts' earnings forecasts iii) the earnings forecasts are considered a source of information in capital markets because the analysts' forecasts are identified as one of the determinants of stock price reaction to the analysts' research reports (Frankel et al., 2006).

The primary function of financial analysts is to reduce information asymmetry among market participants regarding a firm's public and non-public information. This study measures information asymmetry using analysts' forecast accuracy in financial markets (Eugster, 2019; Kim et al., 2017). The existing literature suggests that various factors influence analysts' forecast accuracy. These factors are categorized into analyst and firm characteristics. Analysts' characteristics include experience, qualifications, efforts, forecast horizon, and forecast frequency (Clement, 1999; Hirshleifer et al., 2019; Luo & Xie, 2012; Shukor & Nor, 2011). Similarly, firm characteristics include ownership structure, forecast disclosures, information uncertainty, leverage, credit rating, and earnings quality (Amiram et al., 2013; Datta et al., 2022; Debnath et al., 2021; Embong & Hosseini, 2018; Garciá-Meca & Sánchez-Ballesta, 2006; Jeppson et al., 2018; Parkash et al., 1995; Ramnath et al., 2008; Salerno, 2014). Moreover, there are other factors related to the country's characteristics, such as economic policy uncertainty, political uncertainty, cyclicality of business, and macro uncertainty (Boubakri et al., 2022; Chen et al., 2020, 2022; Chourou et al., 2020; Sinha, 2021; Zhang, 2011).

Initial research on financial analysts focused on the impact of analysts' characteristics on their performance. For instance, O'Brien (1990) and Sinha et al. (1997) found no differences in analysts' earnings forecasts, but Sinha et al. (1999) later noticed differences in analysts' earnings forecasts. Other studies have found that analysts' task-specific experience and qualification positively affect their forecasting

accuracy (Clement, 1999; Yin & Tan, 2017), while bundling – issuing forecasts for multiple firms a day-, and decision fatigue-number of decisions taken over a day- negatively affect their earnings forecast accuracy (Drake et al., 2019; Hirshleifer et al., 2019). Similarly, another stream of literature examines how firm characteristics such as earnings quality(Salerno, 2014), credit rating (Jeppsono et al., (2011), analyst coverage (Allayannis et al., 2020; Yu, 2010), earnings manipulation (Beyer et al., 2021; Porter & Kraut, 2013; Wei & Xue, 20111), and corporate governance (Allayannis et al., 2004; Bagntasarian, 2018; Wang & Yu, 2019) also influence analysts' earnings forecast accuracy.

Furthermore, a literature review reveals that research on the determinants of analysts' earnings forecasts is prominent in developed markets. Like the influence of various firm-specific characteristics, individual-specific factors and market-specific characteristics are studied in the United States of America (USA) (Clement, 1999; Hope & Kang, 2005; Mikhail et al., 1997), United Kingdom (UK), (Blasco et al., 2018; Oussama, 2018) other European countries (EU) (Beckers et al., 2019). Chang et al. (2000) examined the analyst forecast accuracy in 47 countries. The results show an average forecast error of 25.5% in 47 countries. The forecast error ranges from the highest 71.2% for Slovakia to 3.2% for the USA. Further, Beckers et al. (2019) studied the impact of firm characteristics, market capitalization, forecast dispersion, stock return volatility, and country affiliations. The study focuses on the UK among countries in the sample of European countries named Austria, Belgium, Finland, France, Germany, Italy, Netherlands, Portugal, and Spain. The results show that the UK has higher forecast accuracy than other European counties in the sample, while Germany, France, and Italy show less forecast accuracy. In addition, some other studies examined the analyst forecast accuracy using the sample of cross-section data

collected from 41 countries (Bradshaw & Tan, 2012). The results show that the institutional infrastructure of the countries influences analysts' forecast accuracy. With the availability of high institutional infrastructure, the accuracy of analysts' forecasts will be high.

However, the existing literature focuses less on the analysts' forecast accuracy in developing countries. Coën and Desfleurs (2004) examined the properties of analysts' forecasts based on target prices and forecast accuracy in the eight emerging Asia-Pacific countries Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand. The study results show that analysts' forecasts are more accurate and less biased in developed markets like Hong Kong and Singapore among the Asian-pacific countries. Athavale et al. (2013) studied the time series variations in analysts' forecast accuracy among Brazil, Russia, India, and China (BRIC) countries from 1994 to 2009. The results show that the analyst forecast accuracy has remained high overall. The aggregate forecast error is 0.05 in BRIC countries, while in the US, the forecast error is 0.15. Additionally, Chen et al. (2011) found that analysts in China produce less accurate forecasts compared to those in developed markets due to weak investor protection laws and frequent government interventions in financial markets. Similarly, research in India indicates that analysts' forecast accuracy is influenced by firm transparency and earnings manipulation practices (Bhat & Desai, 2018). In Indonesia and Malaysia, analysts' forecast accuracy is hindered by ownership concentration and lower corporate governance standards (Hussain et al., 2020). These findings suggest that country-specific institutional factors play a critical role in determining forecast accuracy.

Narrowing the scope of the current research, this study is limited to Pakistan, a developing country. According to Cajueiro and Tabak (2004), equity markets in

developing countries are more inefficient than those in developed countries. In other words, the results show that information asymmetry exists in the equity markets. Similarly, these results also support the findings of Hamid et al. (2017), which indicate the weak form of the efficient market hypothesis (EMH) in a sample of 14 Asian Pacific countries, including Pakistan, India, Korea, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, Thailand, Japan, and Australia, at the individual level.

Among emerging markets, Pakistan has come under the limelight in recent years. Specifically, the Pakistan Stock Exchange (PSX) was ranked among the ten best-performing frontier markets by Bloomberg for 2012, 2013, and 2014. In 2016, according to Bloomberg, Pakistan was ranked as Asia's best and fifth best-performing stock market globally (Kazmi, 2016). The best performance of the PSX is partly associated with steps taken by the PSX, the Securities and Exchange Commission of Pakistan (SECP), and the government, such as the government initiating an amnesty scheme from 2012 to 2014 for investors to invest their undocumented wealth in the stock market without any inquiry about those funds. However, Choudhary et al. (2020) and Shahid (2018) reported that the decline in performance after 2016 was due to the accountability process ([1]Panama Case–an offshore assets corruption case prosecuted in the Supreme Court against the mainly Mr. Muhmmad Nawaz Sharif, Prime Minister at that time), political instability, exchange rate fluctuations, and the widening gap between fiscal and trade deficits, which influenced Pakistan's stock market performance.

[1] https://www.icij.org/investigations/panama-papers/20170728-pakistan-pm-disqualified/

Referring to Figure 1.1, the market capitalization to GDP ratio reflects stock market development. The high ratio reflects the higher developed market, and the lower ratio shows the underdeveloped market. The Pakistani stock market contributed only approximately 17% of the total GDP to the economy in 2021. In comparison, India has 98.95% of its GDP, China has 82.9%, and Bangladesh has 9.38% by 2021. Despite the small contribution, the annual report of PSX 2021 reports that the Pakistani stock market has performed better in index returns (45 percent) after COVID-19 19than many countries, such as Malaysia, Indonesia, and even the MSCI EM index in the fiscal year 2021(refer to Figure 1.2). However, the market capitalization to GDP ratios shows a downward trend after 2017 due to the decreasing investor confidence in Pakistan's economy (refer to Figure 1.3).

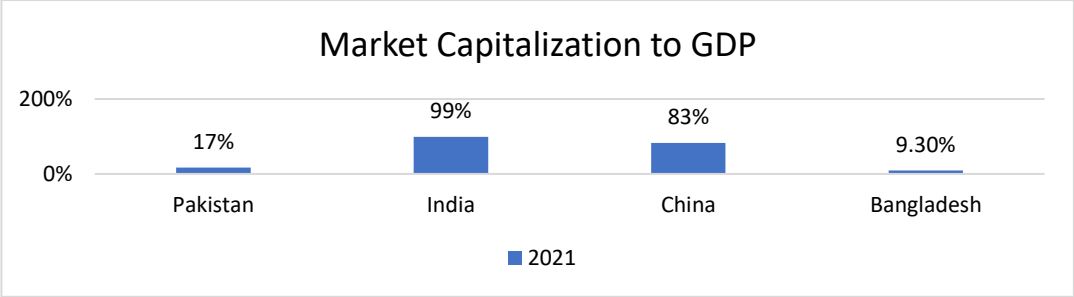

Figure 1.1 Market Capitalization to GDP in 2021

Source: Ceicdata and PSX

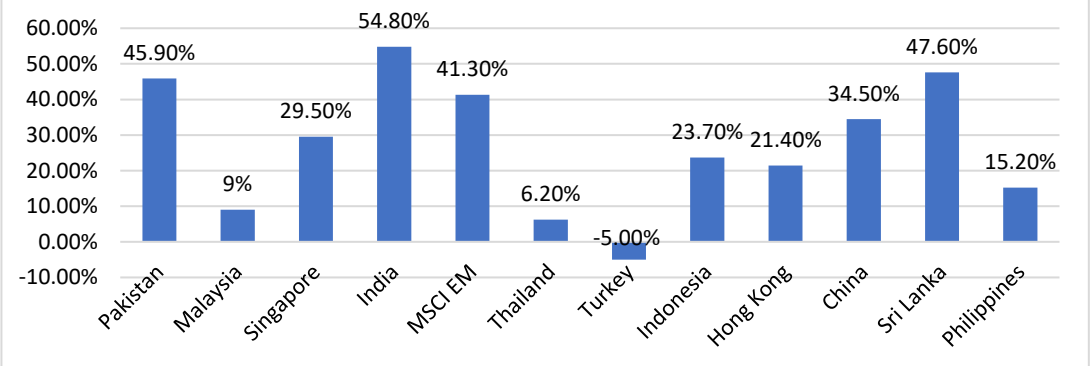

Figure 1.2 Performance of Pakistan Stock Exchange vs other global indices

Source: PSX Annual Report 2021

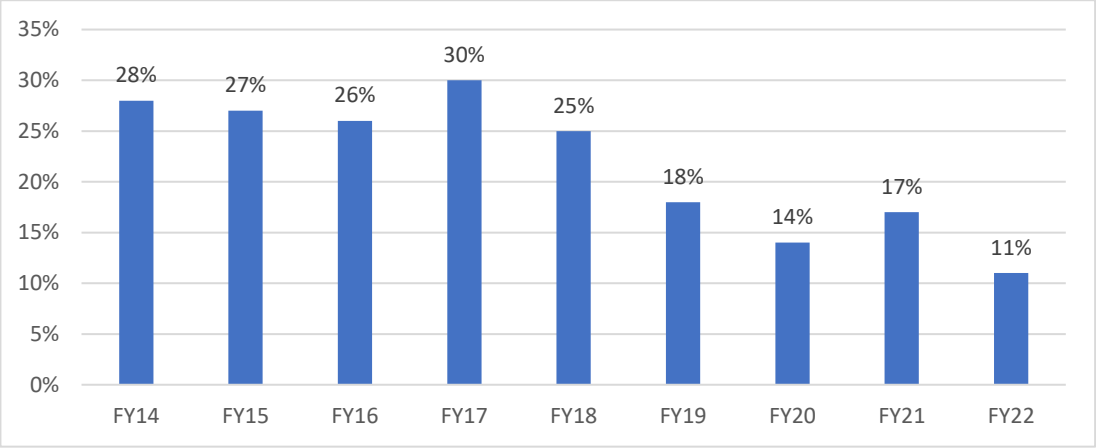

Figure 1.3 PSX Market Capitalization to GDP Ratio from FY14 to FY22

Source: PSX Annual Report 2022

As prior literature suggests, Pakistan is among the countries that experience a weak form of efficient market hypothesis, with high information asymmetry among market participants (Hamid et al., 2017; Khan & Khan, 2016). Information intermediaries, such as financial analysts, can significantly reduce information asymmetry between firms and investors by using their professional knowledge and accessing internal information. Ahmad's (2018) study concluded that financial analysts' recommendations contribute around fifty-five percent to investors in investment decision-making in Pakistan. This significant contribution of financial analysts' recommendations reflects the importance of financial analysts in Pakistan's capital markets. Although investors maintain high trust in analysts' forecasts given their professional skills, the reported cases (such as the EOBI scandal of PKR 350 million) suggest otherwise (Hussain, 2016).

Additionally, earnings management distorts the true financial position of firms, reducing the reliability of reported earnings and making it difficult for analysts to accurately forecast future performance. This issue is particularly relevant in emerging markets like Pakistan, where weak enforcement of accounting standards, limited

regulatory oversight, and concentrated ownership structures provide firms with greater discretion to manipulate earnings (Shah et al., 2009; Javid & Iqbal, 2008). As a result, analysts are often required to rely on subjective judgment, increasing the risk of forecast errors. Furthermore, the relationship between earnings management and analyst forecast accuracy may be amplified or weakened by macroeconomic uncertainty. During periods of high inflation, currency devaluation, or political instability—as commonly experienced in Pakistan—external noise and risk perceptions increase, making it even more challenging for analysts to distinguish between genuine firm performance and manipulated figures (Ahmed & Tahir, 2022). In such environments, the informational value of earnings reports becomes more questionable, and analysts may either become more conservative or overly optimistic in their forecasts. Therefore, this study aims to investigate how macroeconomic uncertainty moderates the earnings management–forecast accuracy link, providing nuanced insights into analyst performance under volatile economic conditions.

The abovementioned studies in developed and developing countries emphasize the importance of analysts' forecast accuracy in the capital markets. The current study examines analysts' forecast accuracy its determinants in a developing economy. This study explores the existing literature to examine the association between analyst forecast accuracy and specific characteristics (qualification and experience), firm-specific characteristics (earnings Management, ownership concentration), and market-specific characteristics (macroeconomic uncertainty). The literature review shows a lack of focus on assessing these three categorized variables' impact simultaneously. Besides, this study will provide more evidence of the information asymmetry using these variables in the analysts' research from developing countries, as Pakistan.

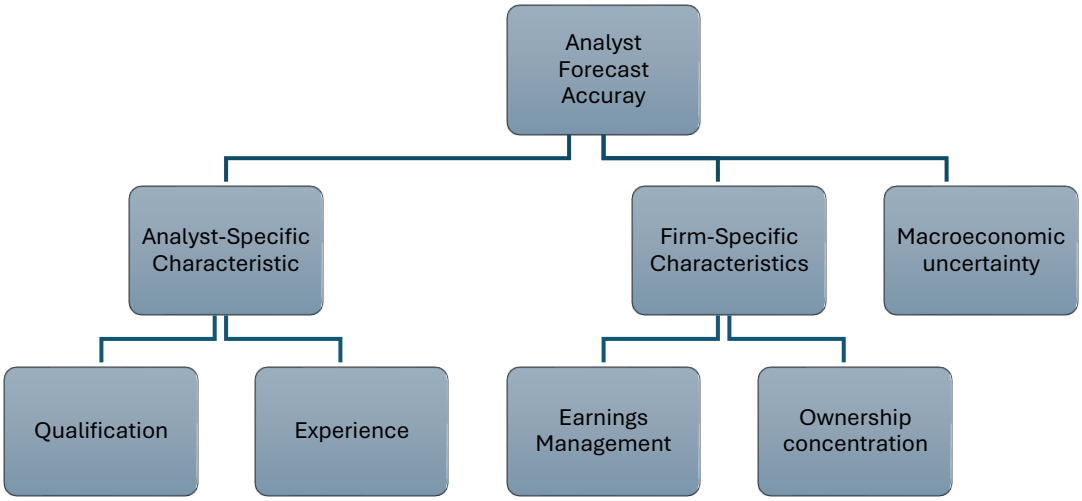

Figure 1.4 Research Gap Chart

To the best of my knowledge, the prevalent literature shows the unexplored areas of financial analysts and their role in the capital markets in Pakistan. This study contributes significantly to the academic discourse on analyst forecast accuracy by addressing a critical research gap in the context of emerging markets, particularly Pakistan. While extensive research has been conducted on the determinants of forecast accuracy in developed markets, the unique economic and regulatory landscape of Pakistan remains unexplored. By integrating analyst qualifications, analyst experience, earnings management, ownership concentration, and macroeconomic uncertainty, this study provides a comprehensive framework to analyze forecast accuracy in a market characterized by high volatility, regulatory changes, and concentrated ownership structures. The inclusion of Pakistan's distinctive financial challenges, such as its recent regulatory reforms and persistent macroeconomic instability, offers fresh insights into how these factors interact to influence analysts' predictive capabilities. This research not only extends the existing literature but also provides a nuanced

understanding of the interplay between firm-specific, analyst-specific, and macroeconomic factors in shaping forecast accuracy in emerging markets.

Furthermore, this study contributes to the broader academic debate on market efficiency and financial transparency in emerging economies. By examining the impact of earnings management and ownership concentration on analyst forecast accuracy, it sheds light on the challenges posed by information asymmetry and corporate governance issues prevalent in Pakistan's market. The findings have important implications for policymakers and regulators, particularly in the context of the Securities and Exchange Commission of Pakistan's (SECP) recent efforts to enhance analyst qualifications and financial reporting standards. This research bridges a critical gap in the literature by offering empirical evidence that can inform strategies to improve market efficiency, strengthen corporate governance, and enhance the reliability of financial forecasts in emerging markets like Pakistan.

1.3 Problem Statement

The Pakistan Stock Exchange (PSX) emerged as one of the top-performing equity markets in frontier markets between 2009 and 2016, ranking fifth globally in 2016 (Petry, 2022; Shafique et al., 2019). Its upgrade to the Morgan Stanley Capital International (MSCI) Emerging Markets Index in May 2017 marked a significant milestone (Bahoo et al., 2018). However, despite this progress, the PSX continues to grapple with critical challenges, including stock market liquidity issues, low financial literacy (26% of the adult group in Pakistan, as reported by Leora et al., 2015), and market inefficiency (Ahmad, 2018; Hamid et al., 2017; Khan & Ahmad, 2018). These challenges underscore a pressing concern: the accuracy of financial analysts' earnings

forecasts, which plays a pivotal role in ensuring market efficiency, investor confidence, and overall financial market development.

Financial analysts are expected to enhance market efficiency by providing accurate earnings forecasts, which guide investment decisions and reduce price inefficiency. However, in Pakistan, analysts have consistently failed to deliver reliable forecasts, as evidenced by prominent cases such as AMTEX Limited and HASCOL, where inaccurate research reports led to significant investor losses (Hussain, 2016; Hussain, 2019). Empirical studies reveal that Pakistani financial analysts achieved only 54% accuracy in meeting 12-month target prices, significantly lower than the benchmark of 74% (Bradshaw et al., 2019; Bradshaw & Tan, 2012). This persistent inaccuracy in analysts' forecasts has far-reaching implications, including reduced market liquidity, heightened price inefficiency, and diminished investor confidence.

The determinants of analysts' forecast accuracy in Pakistan remain underexplored in the academic literature, creating a critical research gap. Prior studies have broadly categorized these determinants into individual-specific, firm-specific, and environmental-specific factors. This study addresses this gap by focusing on four key determinants of analysts' forecast accuracy in Pakistan:

Financial Analysts' Ability: The professional qualifications and experience of financial analysts are critical to their forecasting accuracy. Prior to 2015, there were no formal regulations governing the minimum qualifications or experience of financial analysts in Pakistan. The Securities and Exchange Commission of Pakistan (SECP) introduced reforms, including the "Research Analysts' Regulations," to address this issue by mandating minimum qualifications and experience. However, the impact of these individual-specific factors on forecast accuracy remains underexplored.

Macroeconomic Uncertainty: Pakistan's economy is characterized by high levels of uncertainty due to political instability, macroeconomic volatility, terrorism, and currency fluctuations. The Pakistani Rupee (PKR) depreciated by 32% between July 2017 and December 2020, exacerbating economic instability. During periods of high uncertainty, investors rely heavily on analysts' forecasts, yet analysts often fail to provide accurate predictions. Studies suggest that economic uncertainty increases analysts' forecast errors by 4.29% (Biswas, 2019) through lowering the earnings quality, highlighting the need to examine the impact of exchange rate volatility and macroeconomic instability on forecast accuracy.

Earnings Management: Pakistani firms frequently manage earnings through real-earnings manipulation, accruals-based earnings management, and classification-shifting methods (Ghazali et al., 2015; Lock et al., 2019; Nasir et al., 2019). These practices distort financial statements, which are a primary input for analysts' forecasts. The relationship between earnings management and analysts' forecast accuracy remains underexplored in Pakistan despite its potential to undermine the consistency and reliability of forecasts.

Ownership Concentration: Ownership concentration in Pakistan is highly skewed, with 64% of controlling shares in listed firms held by a few families and business groups (Research Department ICAMP, 2011). This concentration of ownership can lead to information asymmetry and reduced transparency in financial reporting, affecting analysts' ability to generate accurate forecasts. The impact of ownership structure on analysts' forecast accuracy remains a critical yet underexplored area in the literature.

This study seeks to address these gaps by investigating the determinants of financial analysts' forecast accuracy in Pakistan, focusing on the interplay between analysts' ability, macroeconomic uncertainty, earnings management practices, and corporate ownership structure. By doing so, it aims to contribute to the academic literature and provide actionable insights for policymakers, regulators, and market participants to enhance the accuracy of financial forecasts and improve the overall efficiency of the Pakistan Stock Exchange.

1.4 Research Objectives (RO)

The objectives of the study are defined briefly as under

RO1. To examine the impact of analysts' professional qualifications on forecast accuracy.

RO2. To investigate the relationship between analysts' experience and forecast accuracy.

RO3. To examine the relationship between earnings management and analysts' forecast accuracy.

RO4. To analyze the relationship between ownership concentration and analysts' forecast accuracy.

RO5. To evaluate the relationship between macroeconomic uncertainty and analysts' forecast accuracy.

RO6. To investigate moderating impact of macroeconomic uncertainty on the relationship between earnings management and analysts' forecast accuracy.

1.5 Research Questions (RQ)

The following questions are outlined to address the research objectives mentioned above.

RQ1. Is there any relationship of professional qualifications on analysts' forecast accuracy?

RQ2. Is there any relationship between experience and analysts' forecast accuracy?

RQ3. Is there any relationship between earnings management and analysts' forecast accuracy?

RQ4. Is there any relationship between ownership concentration and analysts' forecast accuracy?

RQ5. Is there any relationship between macroeconomic uncertainty and analysts' forecast accuracy?

RQ6. Does macroeconomic uncertainty moderate the relationship between earnings management and analysts' forecast accuracy?

1.6 Significance of Study

Financial analysts are users of a firm's financial statements. Financial analysts use these financial statements to analyze a firm's business health and then issue their analysis reports to investors. The Pakistan stock exchange publishes all the financial statements periodically for all external stakeholders of the firms. In Pakistan, financial analysts issue their analysis reports periodically (quarterly and annually) on the earnings performance of firms. These reports help investors make earnings expectations of the firm and then make investment decisions accordingly.

This study considers Pakistan as its field of study. Pakistan is one of the fast-emerging economies among the developing countries. Pakistan offers access to the fifth largest population in the world along with a resilient economic nature that stands out even during the covid 19. Before Covid 19, the Pakistan Stock Exchange yielded an index growth of 26 percent CAGR (compound annual growth rate) from 2012 to 2017. Pakistan Stock Exchange was awarded the status of the emerging market by Morgan Stanley Capital International (MSCI) in 2017[2].

Pakistan Stock Exchange (PSX) performs as an intermediary for the capital flow in the Pakistan economy. The Pakistan Stock Exchange was established as a single stock exchange after integrating three stock exchanges named KSEx, LSEx, and ISEx in 2016. Currently, the Pakistan Stock Exchange operates 11 indices. Historically, PSX has made significant progress, and PSX had listed 81 companies with Rs1,800 million in 1960. Recently, PSX operated with 530 listed firms in 2020, with a market capitalization of Rs 6,529,707 million in 2020[3]. Pakistan Stock Exchange is offering access to the 35 sectors of the economy.

In addition to the above, the brokerage industry of Pakistan has flourished for two decades. The brokerage industry offers various services to the clients, such as investment advisory, equity and fixed income brokerage, equity and economic research clients, and underwriting the securities offerings. Currently, sixty-eighth brokerage houses provide research services to clients and two independent financial

[2]The economy in 2019 (thenews.com.pk)
[3] https://www.khaleejtimes.com/business/pakistan-loses-emerging-market-status-after-mscis-downgrade

analysts. Nevertheless, this study aims to provide a theoretical and practical contribution of the financial analysts in the stock market.

This study has to be one of the initial studies that explore the role of financial analysts by investigating their ability to forecast earnings accurately in developing countries such as Pakistan. Prior literature shows rare studies on their role in developing countries, such as some conducted in Malaysia, China, India, and Hong Kong. Most of the studies are conducted in developed markets compared to developing countries. However, this study is to be the first study in the context of Pakistan that explores the financial analyst's ability to forecast earnings accurately. Moreover, the prevalent literature has largely explored the analysts' specific characteristics rather than other firm-specific and market-specific characteristics as a determinant of the analysts' forecast accuracy. This study advances existing academic literature by exploring firm-specific factors along with market and analyst-specific factors as determinants of the analyst's forecast accuracy. Besides, this study also provides empirical findings of these factors in the context of developing countries like Pakistan. Additionally, this study also contributes to the theoretical literature on underpinning theories- information asymmetry, agency theory, and learning theories (HCT) provided in the theoretical contribution.

1.6.1 Theoretical contribution

In financial markets, the quality of earnings disclosures is given high value by the external users of the company. Financial analysts are the users of financial statements. These financial analysts help to disseminate information about the firm performance after performing due diligence on the information provided in the financial statements. They issue earnings forecasts, stock recommendations (buy, hold, sell), and target prices for the stocks. The accurate issuance of the analysts' earnings forecasts is not only dependent on the valuation models but also on the information provided by the management. This research aids to literature on accounting and finance regarding the determinants of financial analyst accuracy by using the theory of information asymmetry (Akerlof, 1970) and agency theory which addresses the consequences of information disparity between market participants.

This study provides new insights into the role of information asymmetry and agency theory by studying financial analysts' earnings forecasts. The analysts' forecasts serve as the market expectations. The analysts are supposed to provide information about the firm's performance and reduce any information gap between investors and managers. This empirical study investigates the accuracy of financial analysts' reports by studying the analyst forecast error. This forecast error reflects information asymmetry between financial analysts and firms.

The regulatory body SECP issued the rules for financial analysts in 2015 and the governance rules in 2017, which provides minimum qualifications and experience for financial analysts' eligibility in the Pakistan brokerage industry. This study analyses the impact of qualification and experience on the analysts' earnings forecast accuracy. According to the learnings by doing model, this study will help analyze how

the financial analysts' experience and qualifications help mitigate the information asymmetry and provide more information to the investors in decision making. The literature shows that the increase in experience leads to an increase in the capability of doing the same work more efficiently and effectively.

Further, this study also expects to contribute to the literature on earnings management and ownership concentration in the context of the Pakistani market. This study also expects to examine the role of the corporate governance mechanism, particularly ownership concentration, in reducing information asymmetry and improving the information environment in a country where investor protection laws are weak, like Pakistan. Besides, the literature shows no study has yet been conducted in Pakistan to study the analyst forecast accuracy and its determinants. So, this is the first study to test the relationship between exchange rate volatility, earnings management, and analysts' forecast accuracy in Pakistan. Collectively, this study will advance the existing body of knowledge on analysts' research (Black & Carnes, 2006; Clement, 1999; Coën et al., 2009; Roulstone, 2003) and its determinants to reduce the information asymmetry between firms and market participants.

1.6.2 Practical contribution

This study will also contribute practically to the brokerage houses, regulators, and investors in making their business decisions effective and efficient in Pakistan. This study attempts to understand the implications of new rules for financial analysts and governance rules on the financial analyst's performance in Pakistan. This study's results will help stakeholders understand the role of analysts' forecast accuracy and how the study variables, such as analysts' ability, earnings management, ownership concentration, and exchange rate volatility, impact the analysts' forecast accuracy.

The results of this study will benefit the regulators and brokerage houses by providing the big picture of the performance of the financial analysts in the industry. Specifically, the impact of new financial analysts' qualifications and experience requirements on the accuracy of financial analysts because the analyst's forecast accuracy is one of the critical criteria to recruit the financial analysts.

Brokerage houses will benefit from understanding the role of market factors (exchange rate volatility) and firm-specific factors (earnings management, ownership concentration) in the accuracy of analysts' forecasts. The findings of these variables will help the financial analysts focus on firms' forecast earnings accordingly. In addition to the above contribution, the findings of this study will play a significant role in investors' decision-making. The investors will realize the performance of the financial analysts across the sectors of the Pakistan stock market. Besides that, the investors will also understand the impact of the study variables (analysts' ability, earnings management, exchange rate volatility, ownership concentration) on the analysts' earnings forecasts. They will decide the allocation of capital investment accordingly.

Moreover, this study opens new insights for Pakistan and other developing countries similar in institutional framework to Pakistan. Specifically, this study will also provide insights to regulators, firm managers, and investors (local and international) on the reliability of the financial analysts' reports in the brokerage industry of Pakistan.

1.7 Definitions of Key Terms

This section defines the definition of keywords used in this research study.

- Analyst specific Characteristics

Analysts' specific characteristics include all factors related to individual analysts' personality. Such as, the experience, professional qualification, age, gender, number of firms coverage etc. Analysts' experience (Clement et al., 2007) , professional qualification (De Franco & Zhou, 2009) are largely used to measure the capacity of an analyst to collect , analyze and predict the firm performance

- Firm specific Characteristics

Firm specific characteristics consists of all factors that are relevant to firm. These factors include such as, leverage, earnings management, analyst following, ownership structure, credit rating, size of firm etc.

- Earnings Management

"Earnings management occurs when managers use judgment in financial reporting and in structuring tractions to alter financial reports to either mislead stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on the reported accounting numbers" (Healy & Wahlen, 1999, p.368).

- Macroeconomic Uncertainty

The inability to predict the likelihood of potential materialization of macroeconomic variables is known as macroeconomic uncertainty (Knight, 1921; Yang & Chen, 2021). It is measured by using proxy of exchange rate volatility that

denotes the amount of uncertainty or risk about the size of changes in the exchange rate (Nguyen et al., 2019).

- Ownership Concentration

Ownership concentration defines the proportion of ordinary shares held by significant shareholders (those whose ownership is equal to or greater than 5 percent). (García-Meca & Sánchez-Ballesta, 2011)

- Analyst Load

Analyst load (AL) is one of the analyst-specific control variables. This variable is related to the analyst's workload and is measured as the total number of firms the individual analysts covers in a time *t* (Liu & Wang, 2019)

- Analyst Coverage

Analyst coverage refers to the analysts who are following the firms for producing their research reports. Analyst coverage is calculated as the natural logarithm of analysts' number which follow a firm j in a year t.

- Financial analyst

Financial analyst refers to the individuals who issue stock recommendations, earnings forecasts and target prices through their research.

1.8 Organization of Thesis

This study consists of five chapters. The first chapter outlined the introduction of the study. It starts with background of study, followed by the problem statement, research objectives and significance. The second chapter proposes the theoretical and

conceptual framework along with the review of the existing literature related to study. This chapter also draws the development of hypotheses. The third chapter presents the research methodology and measurement of the study variables. The fourth chapter covers the results of data analysis. Finally, the fifth chapter presents discussion on the results and conclusions. This chapter also presents theoretical and practical implications, limitations of study and recommendations for future research.