

Assessing the Influence of Age and Time Horizon of Trading on Technical Analysis Tool Preferences Among Indian Retail Traders

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Abstract- This research paper explores the importance of various technical analysis tools among retail traders, focusing on differences based on age group and time horizon of investing. The study aims to examine the preferences of retail traders in utilizing technical analysis tools to make trading decisions. The paper proposes multiple hypotheses that investigate the significance of different technical analysis tools such as different chart type, technical indicators and news, among different age groups and time horizon traders. The results of this study provided valuable insights for traders and investors to make informed decisions on which technical analysis tools to use in their trading strategy.

Index Terms- Retail Traders, Indian Financial Market, Technical Analysis, Psychology of Traders, Asset Prices, Behavioral Finance.

I. INTRODUCTION

Fundamental analysis and technical analysis are two different approaches to analyzing securities such as stocks, bonds, and commodities. Fundamental analysis involves analyzing the financial and economic fundamentals of a company or security. This includes examining financial statements, such as income statements, balance sheets, and cash flow statements, as well as evaluating the company's management, industry trends, and macroeconomic conditions. The goal of fundamental analysis is to determine the intrinsic value of a security based on its underlying fundamentals and to make investment decisions accordingly. On the other hand, technical analysis involves analyzing past market data, such as price and volume, to identify patterns and trends that can be used to predict future price movements. This involves using charts, graphs, and other technical indicators to identify patterns and trends in market data. The goal of technical analysis is to identify trends and patterns that can be used to make trading decisions based on the assumption that past price movements can predict future price movements. Technical analysts believe that historical price data can provide valuable insights into an investment's future price movements, and they use this information to make buy and sell decisions.

Retail traders may use a variety of approaches to analyze investments, including both fundamental and technical analysis. However, it's generally believed that retail traders are more likely to rely on technical analysis than on fundamental analysis. One reason for this is that technical analysis is often seen as more accessible and easier to understand for novice traders. Charts and technical indicators can be readily available and can be easily accessed on trading platforms, and there are numerous online resources and communities dedicated to teaching and discussing technical analysis. Another reason is that retail traders often have limited resources and access to information, making it more challenging to conduct in-depth fundamental analysis. Fundamental analysis typically requires a significant amount of research and analysis of financial statements, industry trends, and macroeconomic conditions, which can be time-consuming and require a certain level of expertise.

The Indian financial market has seen a significant growth in the number of retail traders over the past few years. This growth can be attributed to several factors, including increasing access to technology, a growing interest in the stock market, and greater availability of online trading platforms. One of the key drivers of the growth of retail traders in India is the increasing availability of technology. With the widespread availability of smart phones and high-speed internet, it has become easier for people to access financial information and trading platforms from their homes or mobile devices. In addition, the stock market has gained popularity among Indian investors in recent years, as more people are looking for ways to grow their wealth and invest in the long-term. This has been facilitated by the increasing number of financial education programs, investment seminars, and trading courses that are being offered to the public. Another significant factor contributing to the growth of retail traders in India is the greater availability of online trading platforms. Many brokers in India now offer online trading platforms that allow investors to trade in equities, commodities, currencies, and other financial instruments with ease.

The COVID-19 pandemic and the resulting lockdowns had a significant impact on the Indian financial market, particularly on the growth of retail traders. In 2020, there was a surge in the number of new retail investors in the Indian stock market. According to data from the National Stock Exchange (NSE), the number of active registered investors in the Indian stock market increased by 10 million in 2020, reaching a total of 56 million, which is a growth of 22%. The majority of these new investors were retail traders, as institutional investors had largely been cautious due to the uncertainty of the market. The NSE data also showed that the share of retail

investors in the total cash market turnover increased from 39% in 2019 to 47% in 2020. Additionally, the number of demat accounts, which are used to hold shares in electronic form, increased by 11.6 million in 2020, which is a growth of 17.8%. The pandemic and the subsequent market volatility led to a surge in online trading platforms as well. Many retail traders took advantage of the increased accessibility and convenience of online trading to invest in the stock market. According to a report by the Securities and Exchange Board of India (SEBI), the number of active clients of stockbrokers in India increased from 4.8 million in March 2020 to 6.8 million in December 2020, which is a growth of 42%.

Indian retail traders use technical analysis tools such as charts, indicators, and news to identify support and resistance levels in the stock market. Technical analysis is a popular method used by traders to analyze the historical price movements of a stock or market and identify potential trends and patterns. Traders use various chart types, including candlestick charts, line charts, and bar charts, to visualize price movements and identify support and resistance levels. They also use technical indicators such as moving averages, MACD, RSI, and Bollinger Bands, among others, to help confirm potential trends or reversals. In addition to charts and indicators, Indian traders also pay close attention to news and events that can impact the market. They may use fundamental analysis to evaluate the financial health of a company and its prospects for growth or use news releases and economic data to identify potential market-moving events.

Age and Time horizon of retail trader are an important factor that influences the preferences of technical analysis tools among noise traders. This study explores the use of various technical analysis tools by Indian Retail Traders in terms of their age group and time horizon of trading. In the context of Indian retail traders, it is likely that a similar trend exists. With a growing number of younger traders entering the market, there may be an increasing preference for advanced technical analysis tools that rely on technology and automation. The choice of technical analysis tools depends on a trader's individual preferences and their trading strategy. While age may play a role in shaping these preferences, it is not the only factor. It is important for traders to continually evaluate and adapt their tools and techniques to ensure they are effective in navigating the constantly changing market conditions.

II. MOTIVATION

The motivation to conduct present research originated by going through literature of Financial Markets based on characteristics of Retail traders use of technical analysis tools.

Technical analysis is a popular approach to trading in financial markets, which involves using historical price and volume data to identify patterns and trends that may indicate future price movements. Retail traders, who are individual investors and traders who trade their own accounts rather than for a firm, often use technical analysis tools to make trading decisions. Plenty of academic literature is available that served as a motivation to conduct present study.

"Do Retail Traders Buy High and Sell Low? Evidence from Technical Analysis" (Barber et al., 2009)

This study examined the trading behavior of retail traders using technical analysis tools, specifically moving averages and momentum indicators. The authors found that retail traders tend to buy stocks that have recently experienced a price increase and sell stocks that have recently declined in price, indicating that they may be using technical analysis to identify trends.

"Technical Analysis and Individual Investors" (Sullivan and Timmermann, 1999)

This study surveyed individual investors to determine their use of technical analysis tools. The authors found that a significant proportion of individual investors use technical analysis tools, with moving averages and relative strength indicators being the most commonly used.

"The Profitability of Technical Analysis: A Review" (Neely et al., 2010)

This study reviewed the existing literature on the profitability of technical analysis and found mixed results. While some studies suggest that technical analysis can be profitable, others find that it is not more effective than a simple buy-and-hold strategy.

"Do Technical Trading Rules Generate Profits? Evidence from the Taiwan Stock Market" (Huang and Su, 2009)

This study examined the effectiveness of technical trading rules in the Taiwan stock market. The authors found that some technical trading rules were able to generate profits, but only in the short-term. Over the long-term, the technical trading rules were no more effective than a buy-and-hold strategy.

"The Use of Technical Analysis by Fund Managers: International Evidence" (Ferreira and Ramos, 2018)

This study examined the use of technical analysis by fund managers in several countries. The authors found that fund managers in some countries, such as the United States, were more likely to use technical analysis than those in other countries, such as Japan. The authors also found that the use of technical analysis was more common among small and mid-cap fund managers than among large-cap fund managers.

Technical analysis is a popular method used by traders to evaluate securities and forecast future market movements. Technical analysis tools include chart patterns, indicators, and statistical analysis. While technical analysis is used by both retail and institutional traders, this literature review focuses on the use of technical analysis tools by retail traders based on their age group.

Several studies have examined the use of technical analysis by retail traders of different age groups. One study by Abdulrahman and Abdul-Rahman (2017) analyzed the trading behavior of retail investors in the Saudi stock market based on their age. The study found that older investors were more likely to use technical analysis tools than younger investors. The authors suggest that this may be because older investors have more experience and knowledge in the stock market.

Similarly, another study by Kim and Kim (2016) investigated the use of technical analysis by retail traders in the Korean stock market. The study found that older investors tended to use technical analysis tools more frequently than younger investors. The authors suggest that this may be due to the fact that older investors are more likely to have a longer history of investing experience and have more knowledge of the market.

On the other hand, a study by Al-Twaijry and Kryzanowski (2004) examined the trading behavior of retail investors in the Canadian stock market and found that younger investors were more likely to use technical analysis tools than older investors. The authors suggest that younger investors may be more comfortable using technology and may be more willing to try new trading strategies.

In contrast, a more recent study by Chandar and Sivaramakrishnan (2021) found that there was no significant difference in the use of technical analysis tools among retail traders of different age groups in the Indian stock market. The authors suggest that this may be because the use of technical analysis is becoming more widespread among retail traders, regardless of age.

Overall, the literature suggests that there may be some differences in the use of technical analysis tools among retail traders of different age groups, but the results are not consistent across all studies. It is important to note that other factors such as education, income, and experience may also influence the use of technical analysis tools by retail traders. Further research is needed to better understand these factors and their impact on trading behavior.

Short-term traders are those who hold positions for less than a day, commonly known as day traders. These traders use technical analysis tools to identify short-term trading opportunities and are highly dependent on the price charts for their trades. Short-term traders typically use technical indicators such as moving averages, oscillators, and relative strength index (RSI) to determine entry and exit points.

Several studies have shown that technical analysis tools are effective for short-term trading. For instance, a study by Gencay et al. (2002) found that technical analysis tools such as moving averages and momentum indicators can generate significant profits for short-term traders. Moreover, a study by Kostakis and Skiadopoulos (2018) found that combining technical indicators with machine learning algorithms can improve the accuracy of short-term trading signals.

Medium-term traders are those who hold positions for several days to weeks, commonly known as swing traders. These traders use technical analysis tools to identify medium-term trends and trading opportunities. Medium-term traders typically use trend lines, chart patterns, and Fibonacci retracements to determine entry and exit points.

Several studies have also shown that technical analysis tools are effective for medium-term trading. For instance, a study by Olowe (2018) found that chart patterns such as head and shoulders, double tops, and double bottoms can generate significant profits for medium-term traders. Additionally, a study by Wang et al. (2017) found that combining technical indicators and chart patterns can improve the accuracy of medium-term trading signals.

Long-term traders are those who hold positions for several months to years, commonly known as position traders. These traders use technical analysis tools to identify long-term trends and trading opportunities. Long-term traders typically use trend lines, moving averages, and Elliott wave theory to determine entry and exit points.

Several studies have shown that technical analysis tools are effective for long-term trading as well. For instance, a study by Brooks and Kim (2017) found that using moving averages can generate significant profits for long-term traders. Moreover, a study by Raza and Tabassum (2019) found that combining trend lines with other technical analysis tools such as momentum indicators can improve the accuracy of long-term trading signals.

Overall, technical analysis tools are widely used by retail traders of all time horizons, from short-term day traders to long-term position traders. Various studies have shown that technical analysis tools are effective for generating trading signals, and combining different technical analysis tools can improve the accuracy of these signals. However, it is important to note that technical analysis is not a foolproof method, and traders should also consider other factors such as fundamental analysis, risk management, and market sentiment when making trading decisions.

III. METHODOLOGY

The study was concerned with the exploration of the characteristics of Retail Traders use of technical analysis tools.. For this study a survey-based descriptive cross-sectional research design is used.

It was decided that the method of data collection will be through a survey and the data collection instrument will be a self-drafted questionnaire. Since the survey was targeted to the retail participant of the stock market, who are based in different states, it was decided to administer the survey through a Google form send to the sample element via email or a Google link provided to What's App Numbers.

Population-In the present study, the population refers to a cohort of all the retail traders registered through different stock brokers in all the states. As per SEBI Investor Survey the west zone has 50% investors out of all registered investors having Demat Account. In the south zone, there are 7% investors whereas the North and east zone has 26% and 15 % investors respectively. These figures are taken as a base while deciding on the sample size and while selecting sample elements.

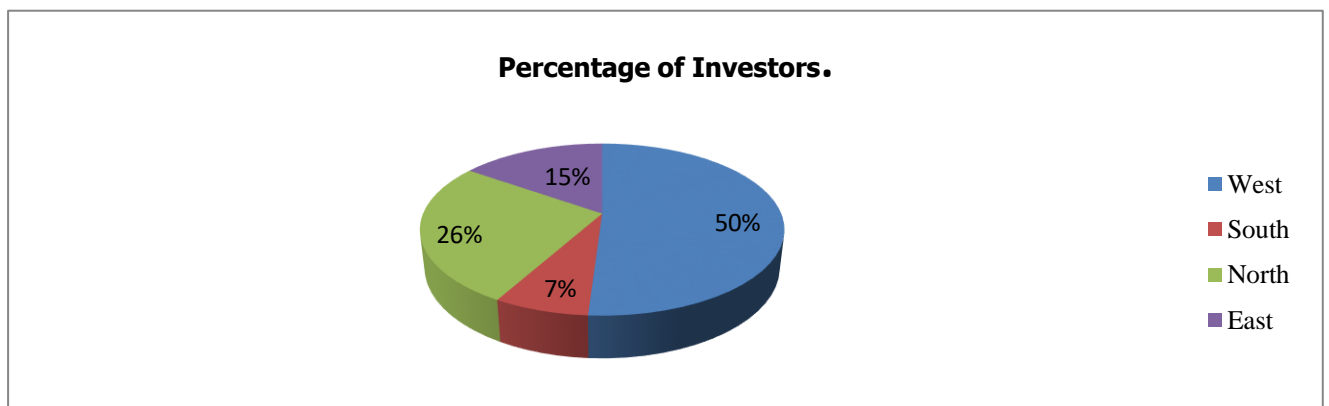


Table 1. Sample Items from Various Zones

Broker	Zone	City	Client	Sample Used in
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			Communicated	Data Analysis
SMC	West	Mumbai	75	62
Angel Broking	West	Mumbai	104	95
Edeilwise	West	Mumbai	82	60
SMC	West	Ahmadabad	50	45
IIFL	North	Delhi	55	40
SMC	North	Jaipur	80	62
SMC	South	Banglore	105	82
SMC	South	Hyderabad	110	85
IIFL	East	Bhopal	105	87
Total			766	618

In order to investigate the characteristics of Noise Trader Following Hypothesis are formed—

Hypothesis of Difference Based on Trader's Age Group.

H₁: There is no significant difference in importance of Line Chart as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₂: There is no significant difference in importance of Bar Chart as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₃: There is no significant difference in importance of Candle Stick Chart as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₄: There is no significant difference in importance of Moving Averages as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₅: There is no significant difference in importance of Trendlines as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₆: There is no significant difference in importance of Support and Resistance as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₇: There is no significant difference in importance of Oscillator as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₈: There is no significant difference in importance of Relative Strength Index (RSI) as the preferred Technical Analysis tool for trading, between different age groups of trader.

H₉: There is no significant difference in importance of News as the preferred tool for trading on key levels, between different age groups of trader.

Hypothesis of Difference Based on Trader's Time Horizon of Investing.

H₁₀: There is no significant difference in importance of Line Chart as the preferred Technical Analysis tool for trading, between different time horizon traders.

H₁₁: There is no significant difference in importance of Bar Chart as the preferred Technical Analysis tool for trading, between different time horizon traders.

H₁₂: There is no significant difference in importance of Candle Stick Chart as the preferred Technical Analysis tool for trading, between different time horizon traders.

H₁₃: There is no significant difference in importance of Moving Averages as the preferred Technical Analysis tool for trading, between different time horizon traders.

H₁₄: There is no significant difference in importance of Trend lines as the preferred Technical Analysis tool for trading, between different time horizon traders.

H₁₅: There is no significant difference in importance of Support and Resistance as the preferred Technical Analysis tool for trading, between different time horizon traders.

H₁₆: There is no significant difference in importance of Oscillator as the preferred Technical Analysis tool for trading, between different time horizon traders.

H17: There is no significant difference in importance of Relative Strength Index (RSI) as the preferred Technical Analysis tool for trading, between different time horizon traders.

H18: There is no significant difference in importance of News as the preferred tool for trading on key levels, between different time horizon traders.

IV. RESULT AND DISCUSSION

Table 2 Mean value of importance attached to various Technical Analysis tools by retail traders groups based on Age.

Statistics				
	Age of Trader			
	15-20	20-30	30-40	>40
	Mean	Mean	Mean	Mean
Line Chart Usage as TA Tool	1.60	1.36	1.17	1.25
Bar Chart Usage as TA Tool	1.00	1.32	1.25	1.17
Candle Stick Chart Usage as TA Tool	2.00	2.76	2.50	3.00
Moving Average Usage as TA Tool	1.40	2.28	2.42	2.50
Trendline Usage as TA Tool	1.60	2.23	2.58	1.92
Support and Resistance Usage as TA Tool	2.80	3.04	2.67	2.92
Oscillator Usage as TA Tool	1.40	1.41	1.25	1.50
RSI Usage as TA Tool	1.80	1.56	1.17	1.33
News for TA Labels	5.00	3.76	2.67	1.58

Age Group 15-20 Years attach the highest importance to Line Chart as a TA tool. Age Group 30-40 Years attach the least importance to Line Chart as a TA tool. Age Group 20-30 Years attach the highest importance to Bar Chart as a TA tool. Age Group 15-20 Years attach the least importance to Bar Chart as a TA tool. Age Group >40 Years attach the highest importance to Candle Stick Chart as a TA tool. Age Group 15-20 Years attach the least importance to Candle Stick Chart as a TA tool. Age Group >40 Years attach the highest importance to Moving Average as a TA tool. Age Group 15-20 Years attach the least importance to Moving Average as a TA tool. Age Group 30-40 Years attach the highest importance to Trend lines as a TA tool. Age Group 15-20 Years attach the least importance to Trend lines as a TA tool. Age Group 20-30 Years attach the highest importance to Support and Resistance as TA tools. Age Group 15-20 Years attach the least importance to Support and Resistance as TA tools. Age Group >40 Years attach the highest importance to Oscillators as TA tools. Age Group 30-40 Years attach the least importance to Oscillators as TA tools. Age Group 15-20 Years attach the highest importance to RSI as a TA tool. Age Group 30-40 Years attach the least importance to RSI as a TA tool. Age Group 15-20 Years attach highest importance News based levels as TA tool. Age Group >40 Years attach the least importance to Oscillators as TA tools.

Table 3 Test of Significance, using ANOVA, to the importance attached to various Technical Analysis tools by retail traders groups based on Age.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Line Chart Usage as TA Tool	Between Groups	6.943	3	2.314	8.332	.000
	Within Groups	133.890	482	.278		
	Total	140.833	485			
Bar Chart Usage as TA Tool	Between Groups	4.623	3	1.541	8.821	.000

	Within Groups	84.210	482	.175		
	Total	88.833	485			
Candle Stick Chart Usage as TA Tool	Between Groups	36.793	3	12.264	14.417	.000
	Within Groups	410.040	482	.851		
	Total	446.833	485			
Moving Average Usage as TA Tool	Between Groups	42.090	3	14.030	17.824	.000
	Within Groups	379.410	482	.787		
	Total	421.500	485			
Trendline Usage as TA Tool	Between Groups	40.686	3	13.562	25.661	.000
	Within Groups	254.740	482	.529		
	Total	295.426	485			
Support and Resistance Usage as TA Tool	Between Groups	10.743	3	3.581	5.752	.001
	Within Groups	300.090	482	.623		
	Total	310.833	485			
Oscillator Usage as TA Tool	Between Groups	3.504	3	1.168	2.781	.041
	Within Groups	202.432	482	.420		
	Total	205.936	485			
RSI Usage as TA Tool	Between Groups	18.360	3	6.120	21.432	.000
	Within Groups	137.640	482	.286		
	Total	156.000	485			
News for TA Labels	Between Groups	528.043	3	176.014	776.274	.000
	Within Groups	109.290	482	.227		
	Total	637.333	485			

Now, looking at the ANOVA table, we can see that the significance value (Sig.) for all technical analysis tools is less than 0.05, indicating that there is a statistically significant difference between the mean usage of these tools across age groups. This means that we can reject the null hypothesis that there is no difference between the mean usage of these tools across age groups. For Line Chart Usage, the mean usage is highest for traders in the 15-20 age group and lowest for traders in the 30-40 age group. This difference is statistically significant, with a p-value of less than 0.05.

For Bar Chart Usage, the mean usage is highest for traders in the 20-30 age group and lowest for traders in the >40 age group. This difference is also statistically significant, with a p-value of less than 0.05.

For Candle Stick Chart Usage, the mean usage is highest for traders in the >40 age group, and lowest for traders in the 15-20 age group. This difference is highly statistically significant, with a p-value of less than 0.001.

For Moving Average Usage, the mean usage is highest for traders in the 30-40 age group and lowest for traders in the 15-20 age group. This difference is highly statistically significant, with a p-value of less than 0.001.

For Trend Line Usage, the mean usage is highest for traders in the 30-40 age group and lowest for traders in the 15-20 age group. This difference is highly statistically significant, with a p-value of less than 0.001.

For Support and Resistance Usage, the mean usage is highest for traders in the 20-30 age group and lowest for traders in the 30-40 age group. This difference is statistically significant, with a p-value of less than 0.05.

For Oscillator Usage, there is no clear trend in mean usage across age groups, but the difference in mean usage between age groups is statistically significant, with a p-value of less than 0.05.

For RSI Usage, the mean usage is highest for traders in the 15-20 age group and lowest for traders in the 30-40 age group. This difference is highly statistically significant, with a p-value of less than 0.001.

For News for TA Labels, the mean usage is highest for traders in the 15-20 age group, and lowest for traders in the >40 age group. This difference is highly statistically significant, with a p-value of less than 0.001.

Subsequently **H₁, H₂, H₃, H₄, H₅, H₆, H₇, H₈, and H₉** are rejected.

Table 4 Mean value of importance attached to various Technical Analysis tools by retail traders groups based on the Time Horizon of Investing

Statistics					
	Time Horizon of Investing				
	Very Long Term > 1 Year	Long Term 6 Month -1 Year	Very Short Term <1 Month	Intraday < 1 Day	Scalping - a few Minutes
	Mean	Mean	Mean	Mean	Mean
Line Chart Usage as TA Tool	1.00	1.50	1.17	1.45	1.00
Bar Chart Usage as TA Tool	1.25	1.00	1.17	1.26	1.40
Candle Stick Chart Usage as TA Tool	2.88	2.75	3.00	2.48	3.20
Moving Average Usage as TA Tool	2.13	3.00	2.67	2.23	1.80
Trendline Usage as TA Tool	2.13	1.50	2.50	2.28	1.80
Support and Resistance Usage as TA Tool	3.00	3.00	3.17	2.77	3.20
Oscillator Usage as TA Tool	1.38	1.75	1.33	1.33	1.60
RSI Usage as TA Tool	1.13	2.00	1.17	1.52	1.40
News for TA Labels	1.75	1.75	3.83	3.45	3.80

The highest mean values for Technical Analysis tools were observed in Candlestick Chart Usage (mean values ranging from 2.48 to 3.20) and Support and Resistance Usage (mean values ranging from 2.77 to 3.20) across all time horizons. On the other hand, Moving Average Usage and Trend Line Usage had the lowest mean values for the Scalping time horizon (1.80 and 1.80, respectively).

Long Term traders attach the highest importance to Line Charts as a TA tool. Scalper attaches the least importance to Line Chart as a TA tool. Scalpers attach the highest importance to Bar Chart as a TA tool. Long Term Traders attach the least importance to Bar Charts as a TA tool.

Scalper attaches the highest importance to Candle Stick Chart as a TA tool. Intraday Traders attach the least importance to Candle Stick Chart as a TA tool. Long Term Traders attach the highest importance to Moving Average Time Horizon based as a TA tool. Scalpers attach the least importance to Moving Average Time Horizon based as a TA tool. Short Term Traders attach the highest importance to Trend lines as a TA tool. Long Term Traders attach the least importance to Trend lines as a TA tool. Scalpers attach the highest importance to Support and Resistance as a TA tool. Intraday Traders attach the least importance to Support and Resistance as TA tools. Long Term Traders attach the highest importance to Oscillators as TA tools. Short Term and Intra Day Traders attach the least importance to Oscillators as TA tools. Long Term Traders attach the highest importance to RSI as a TA tool. Short Term Traders attach the least importance to RSI as a TA tool.

Scalpers attach the highest importance News based levels as TA tools. Very Long Term and Long Term Traders attach the least importance to Oscillators as TA tools.

Table 5 Test of Significance, using ANOVA, to the importance attached to various Technical Analysis tools by retail traders groups based on the Time Horizon of Investing.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Line Chart Usage as TA Tool	Between Groups	19.237	4	4.809	19.024	.000

	Within Groups	121.597	481	.253		
	Total	140.833	485			
Bar Chart Usage as TA Tool	Between Groups	3.614	4	.903	5.100	.000
	Within Groups	85.219	481	.177		
	Total	88.833	485			
Candle Stick Chart Usage as TA Tool	Between Groups	31.331	4	7.833	9.067	.000
	Within Groups	415.502	481	.864		
	Total	446.833	485			
Moving Average Usage as TA Tool	Between Groups	39.651	4	9.913	12.487	.000
	Within Groups	381.849	481	.794		
	Total	421.500	485			
Trendline Usage as TA Tool	Between Groups	31.657	4	7.914	14.432	.000
	Within Groups	263.769	481	.548		
	Total	295.426	485			
Support and Resistance Usage as TA Tool	Between Groups	13.359	4	3.340	5.400	.000
	Within Groups	297.474	481	.618		
	Total	310.833	485			
Oscillator Usage as TA Tool	Between Groups	7.848	4	1.962	4.764	.001
	Within Groups	198.088	481	.412		
	Total	205.936	485			
RSI Usage as TA Tool	Between Groups	24.148	4	6.037	22.023	.000
	Within Groups	131.852	481	.274		
	Total	156.000	485			
News for TA Labels	Between Groups	281.287	4	70.322	95.001	.000
	Within Groups	356.047	481	.740		
	Total	637.333	485			

From the ANOVA results, we can see that all the Technical Analysis tools have a significant difference in mean values between the groups (p -value < 0.05). The between-groups sum of squares, F-value, and p -value are all reported for each tool.

The ANOVA results showed that all Technical Analysis tools had a significant difference in mean values between the groups (p -value < 0.05), with F-values ranging from 4.764 to 95.001 and p -values all reported as 0.000. The tool with the highest F-value and p -value was News for TA Labels ($F=95.001$, $p=0.000$), indicating the largest difference in mean values between groups for this tool.

Subsequently **H₁₀, H₁₁, H₁₂, H₁₃, H₁₄, H₁₅, H₁₆, H₁₇, and H₁₈ are rejected.**

V. CONCLUSION

Overall, it appears that candlestick charts, moving averages, trendlines, support and resistance, and RSI are the most popular TA tools among retail traders, regardless of their age. News for TA labels, on the other hand, is the least popular TA tool among all age groups.

Looking at the age groups specifically, traders aged 20-30 and above 40 seem to attach the most importance to candlestick charts, while traders aged 30-40 attach the most importance to trendlines. Moving averages are highly valued by traders aged 30-40 and above 40. Support and resistance are highly valued by traders aged 20-

30 and above 40. Regarding chart types, traders aged 15-20 attach the most importance to candlestick charts, while traders aged above 40 attach the least importance to line charts. Bar charts seem to be the least popular chart type among all age groups.

In summary, the importance attached to different TA tools by retail traders varies based on their age. Candlestick charts, moving averages, trendlines, support and resistance, and RSI are the most popular TA tools among all age groups, while news for TA labels is the least popular.

It can also be concluded that support and resistance, candlestick charts, and moving averages are the most popular TA tools among all time horizons of retail traders. News for TA labels seems to be least popular among all time horizons.

Looking at the time horizons specifically, very long-term traders attach the most importance to support and resistance and moving averages, while they attach the least importance to RSI and news for TA labels. Long-term traders attach the most importance to moving averages, trendlines, and support and resistance. Very short-term traders attach the most importance to news for TA labels, candlestick charts, and support and resistance. Intraday traders attach the most importance to support and resistance and moving averages. Scalping traders attach the most importance to candlestick charts and support and resistance.

Regarding chart types, candlestick charts seem to be the most popular among all time horizons of retail traders, while bar charts are least popular.

In summary, the importance attached to different TA tools by retail traders varies based on the time horizon of their investments. Support and resistance, candlestick charts, and moving averages are the most popular TA tools among all time horizons of retail traders, while news for TA labels is the least popular.

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