Analyzing Investor Preferences: Algorithmic vs. Manual Trading Strategies

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Abstract— Investing in financial markets involves the buying and selling of various financial instruments such as stocks, bonds, currencies, and commodities with the aim of making a profit. Participants in financial markets include individual investors, institutional investors, and traders who engage in transactions through various platforms. Two types of investing techniques used by investors are manual and algorithmic. Manual traders depend on their experience, intuition, and real-time market analysis to make investing decisions. While algorithmic investing is known for its efficiency, speed, and ability to handle large volumes of data, manual investing allows for a more intuitive and adaptive approach, incorporating the trader's qualitative insights into decision-making. Both methods have their merits and demerits, and their effectiveness often depends on factors such as the trader's expertise, market conditions, and the specific goals of the trading strategy. This article aims to investigate the investors' attitudes towards manual as well as algo trading strategies. For this purpose, a sample of 80 investors employed in IT sector is considered from Bangalore East. The data is analyzed based on variables like demography of investors, trading experience, preference towards trading strategies: manual or algo, and technological literacy. This research enhances our understanding of investor sentiment in the dynamic intersection of algorithmic and manual trading.

Keywords— Manual trading, algorithmic trading, trading strategies, perceived risk, technological literacy.

I.   INTRODUCTION

In the financial markets, there are two methods of carrying out trades: algorithmic trading, which is also known as automated trading or algo trading, and manual trading. When a trader manually makes an order in the financial markets, they largely depend on their own discretion, analysis, and intuition. We consider this process "manual trading." When trading manually, the actions like the careful analysis, market observations, and decision-making over when to enter and exit positions are done by the trader. Using computer algorithms to automatically execute trading strategies is known as algorithmic trading. These algorithms are made to enter, handle, and withdraw from transactions in compliance with preset rules and specifications. Algorithmic trading uses statistical analysis, mathematical models, and computerized trading systems to make trading decisions. In summary, manual trading relies on human judgement and discretion, whereas algorithmic trading automates trading decisions based on predetermined rules and algorithms. Every method has advantages and disadvantages of its own, and factors such as trade preferences, style, and resource availability affect which strategy is chosen. In summary, manual trading relies on human judgement and

discretion, whereas algorithmic trading automates trading decisions based on predetermined rules and algorithms. Every method has advantages and disadvantages of its own, and factors such as trade preferences, style, and resource availability affect which strategy is chosen.

II.   RESEARCH PROBLEM

This study compares investor preferences between manual and algorithmic financial market trading strategies. Despite the increasing popularity of algorithmic trading, there is a knowledge vacuum on investor preferences when it comes to algorithmic vs manual trading strategies. It is more challenging to develop trading methods that satisfy investors' needs and objectives when there is a lack of understanding. Thus, the study attempts to find the preferences between both types of trading based on demography, relationship between variables under study and trading type.

III.   RELATED WORK

K. Sudhakar (2018) investigated that algo trading systems account for 10-30% trades at NSE and BSE.

Algorithmic trading is widely used in financial organizations when large orders are performed and human reaction times are greater. (T. Salkar, 2021).

Algorithmic traders, or ATs, are important players in the market liquidity space. They impact trading behavior and market dynamics by consuming liquidity when it is cheap and offering it when it is expensive. (Terrence Hendershott, 2013).

Although it increases short-term volatility, algorithmic trading boosts liquidity and informational efficiency; the advantages are greater for large stocks than for small companies. (Boehmer, 2020).

Algorithmic trading using RSI and MACD technical indicators can provide high-profit intraday trading, with returns up to 12%. (T. Salkar, 2021).

Although market attitudes and individual expert performance might restrict the usefulness of expert recommendations for algorithmic trading, they can still be beneficial for profitable trading. (Andrzej Ruta, 2017)

Precision in stock recommendations and personalized demand are effectively enhanced by the algorithm that is based on the trading behavior of stock investors. (Songhe Jin, 2013).

The Indian stock market may not be suffering from algorithmic trading or high frequency trading (HFT), but technological developments have changed the makeup and operation of financial markets. (Kissell, 2010)

In this work, we provide a unique approach to identify the

individualized preferences of stock market participants. Our work can predict investors' individual preferences for each stock, which is useful for implementing investment recommendations. For example, it can provide current news or other people's thoughts on equities that the target user has selected. (Jun Chang, 2018)

The inability to consistently comprehend the irrational market and the requirement for constant monitoring are two disadvantages of algorithmic trading. This proposed effort seeks to construct various algorithms based on the needs of traders or investors using a combination of Python-based data science concepts and machine learning techniques. Our strategy produces an adequate return for the client on his long-term investments and beats the index returns. (Vishwambhari, 2022)

IV. RESEARCH OBJECTIVES

(i) To summarize the data based on demographic factors like age, gender, and educational background.
(ii) To examine mean differences between male and female investors based on preference of algo trading.
(iii) To examine the relationship between confidence level of using Algo trading strategy and)
(iv) To examine the association between preference of trading strategy and trading experience.

V. RESEARCH HYPOTHESES

(i) H1a: There is significant difference between male and female investors regarding preference of trading strategies.
(ii) H1b: Technological literacy positively impacts the investor's confidence for using algorithmic trading.
(iii) H1c: Trading experience and preference of trading strategy are associated.

VI. RESEARCH METHODOLOGY

This study is descriptive and analytical in nature which is conducted using primary data. The primary data was also collected using questionnaire from 80 respondents belonging to Bangalore city belonging to age group of 25- 55 years adapting convenience sampling technique The collected data has been analyzed using summary statistics, t test, chi-square test and correlation with the help of EXCEL data analysis.

TABLE 1. Demographic information

	CatCategory	No. of respondents	Percentage
Gender	Male	48	60 %
	Female	32	40 %
Male	Manual trading	18	22.5 %
	Algo trading	30	37.5 %
Female	Manual trading	20	25%
	Algo trading	12	15%
Age (in years)	25-35	38	47.5 %
	35-45	25	31.25 %
	45-55	17	21.25 %
Qualification	Graduate	40	50 %
	Postgraduate	28	35 %
	Doctorate	12	15 %

Since p-value of 0.028327852, there is sufficient evidence to reject the null hypothesis at the 0.05 significance level,

indicating a statistically significant result.

TABLE 2. t test calculation for Research objective (ii) and Hypothesis H1a

t-Test: Two-Sample Assuming Equal Variances		
	Male	*Female*
Mean	1.375	1.625
Variance	0.239361702	0.24193548
Observations	48	32
Pooled Variance	0.240384615	
Hypothesized Mean Difference	0	
df	78	
t Stat	-2.234278407	
P(T<=t) one-tail	0.014163926	
t Critical one-tail	1.664624645	
P(T<=t) two-tail	0.028327852	
t Critical two-tail	1.990847069	

TABLE 3. Correlation between trading preference and technology literacy

	Trading preferences	**Technological literacy**
Trading preferences	1	
Technology literacy	0.788629315	1

From the above table, it is evident that the investors who are using algo trading have very good knowledge in using technology in form of algo software and platforms. Technology literacy is measured by using Likert scale.

TABLE 4. Chi square test to find association between trading experience and trading preference.

Trading experience/Trading preference	Algo trading	Manual Trading	Row total
5 years and less than 5 years	18	18	36
More than 5 years	24	20	44
Column total	42	38	80

Based on the above information, the chi-square statistic is 0.164 and the p-value associated with this chi-square statistic is 0.685458. Since p value is greater than 0.05 at 0.05 significance level, there is no sufficient evidence to reject null hypothesis. It proves that variables trading experience and preference of trading strategy are not associated. They are independent of each other.

VII. LIMITATIONS

This research study is limited to respondents of certain part of Bangalore city as data is collected using convenience sampling and hence the findings cannot be generalized.

VIII. FINDINGS

Following are the findings from the data analysis and interpretation.
(i) 60% male and 40% female use manual as well as algo trading.
(ii) Among 80 respondents, 22.5% and 25% are male and female respectively who use manual trading techniques. 37.5% and 15% are male and female respectively who use algo trading techniques respectively.

(iii) There is significant difference between male and female investors regarding preference of trading strategies: manual and algorithmic.

(iv) Trading preference for algorithmic trading and knowledge of technology in using trading platform are highly correlated.

(v) Trading experience and trading preference are not associated.

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