The Philippine Stock Market: How do Filipinos Make Investment Decisions based on Selected Market Information?

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ABSTRACT

Access to information is paramount for retail investors, offering insights into prevailing industry and market dynamics that could sway investment outcomes. Making informed decisions is crucial for successful investing. Retail investors heavily lean on timely and precise information to navigate critical aspects of investment management, including strategic asset allocation, prudent portfolio diversification, opportune entry and exit points, and effective risk mitigation strategies. This research involved 250 retail investors from the Philippines who took part from May 2016 to April 2019. They assessed the importance of market information in guiding their investment choices (that is, to buy, hold, or sell) in bullish and bearish market conditions. The study categorized 19 pieces of information into macroeconomic, fundamental, and market trading categories. Among these, investors placed the highest importance on return on investment, bid/ask trade volume, and the P/E ratio. The findings revealed that macroeconomic, financial, and trading data had varying degrees of correlation with investors' decisions to buy, sell, or hold investments in both bullish and bearish markets.

Keywords: retail investors, market information, stock market, investment decision.

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1. INTRODUCTION

Asset allocation and security selection are two components in the process of investment decision-making (Bodie, 2018; Reilly, 2019). To make these decisions, an investor needs information that will help them develop an understanding of the economy, business, and the market itself that drives their choices. In addition, investors expect prices to adjust quickly to new information regarding supply or demand, which means that prevailing market prices reflect all available information about the asset (Reilly, 2019). Studies have shown that retail investors do not read stock research reports (Vivas, 2014; Loughran & McDonald, 2017), do SEC filings, attend investor conferences, have no access to the management team, or study the industry in depth before making an investment decision. Individual investors need to pay more attention to accounting information due to high awareness costs and limited resources; they are unaware that an accounting disclosure exists. However, in valuation models and trading decisions, investors must gain the skills to evaluate, combine, and incorporate accounting information (Blankespoor et al., 2019). Instead, retail investors often turn to social media, online forums, investor-focused websites, and online news sources for company information and updates.

While some retail investors understand critical financial concepts, have confidence, and have the ability to make appropriate investment decisions, they must also be aware of changing economic conditions, such as the bull and bear markets. Certain information

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triggered by market conditions (Koshoev, 2023) influences buy, hold, and sell decisions (Rahayu, 2017; Hojat, 2015;).

In the CBRD notes and briefing initial presentation of this study, stated that there is limited study of retail investors in the Philippine Stock Market, particularly the influence of market information on investment decisions. Specifically, the researcher was interested in contributing knowledge to the understanding and expanding knowledge regarding market information and investment decisions by retail investors, which promotes sound market trading activity.

2. LITERATURE REVIEW

The widening use of online trading and better access to financial information has increased the number of retail investors in recent years. Retail investors typically exert less influence (Koshoev, 2023) over corporate decisions than more significant institutional shareholders (Tracy, 2019).

Several studies (Ansari, 2019) concluded that investors' decisions are influenced by age, gender (Loibl & Hira,2013), education (Campbell, 2006; Grable, 2016; Goetzman & Kumar, 2008; Fachrudin & Fachrudin, 2016 & Liivamägi, 2016), and occupation and identified that age is among the most critical factors influencing investor decisions. Previous studies concluded that both male and female investors are concerned about considering past company dividends while investing in equity shares (Singh *et al*., 2016). Male investors analyze financial ratios such as P/E ratio, D/P ratio, and other liquidity ratios, while female investors, due to a lack of financial literacy, are not so familiar with financial ratios (Vohra & Kaur, 2017 &Goetzman & Kumar, 2008).

Studies conclude that the investors' decisions depend on how the information is presented and how well they understand the risks involved in their choices (Aruna & Rajashekar, 2015). Research indicates that service agencies need effective training and tools for investors to become skilled and independent (Sriborisutsakul & Inthong, 2018).

Holding around 10 stocks across different sectors is generally less risky than just two, depending on factors like investment horizon and market conditions (Vivas, 2014).

Studies revealed that most Filipino investors use online portals as their preferred trading platform (Chua, 2014). Information from a radio program can be unbiased, especially when there is proof that the program sponsors or the broadcast network benefits are persuaded to buy or sell a particular stock. This practice has the potential to lead people to invest in fraudulent systems (U.S. SEC. Gov., 2015). Media can reach sophisticated and unsophisticated investors, the public, investment regulators, and lawmakers (An et al., 2020). A large body of literature where economic variables such as price levels, asset prices, inflation trends, real and nominal interest rates, return on investment, and risk factors (Ho & Odhiambo, 2018) were considered essential bases for investment decision-making. Asian stock markets are found to be giving more importance to data related to the US stock market as it is the indicator of a country's economic condition (Nguyen & Ngo, 2014; Mandaviya, 2014).

Many annual reports also include items of shareholders' interest beyond what is mandated by regulations, such as those details reported under the SEC Form 17A (Vivas, 2014). The price-to-earnings ratio (P/E ratio) is the most common ratio most investors utilize. It gives a quick snapshot of whether the company is cheap or expensive (Germo, 2015; Moore, 2015). Return on investment (ROI) measures investment returns relative to the investment's cost. This calculation is not too complex, and its wide range of applications makes it relatively easy to understand (Investopedia, 2021).

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The participants sold more stocks when the news was terrible, and the price data was trending negative than they bought when the news was good, and the price data was trending positive. Similar results were obtained when they compared the "hold" deviation for good and bad news (Sobolev et al., 2017& Rahayu, 2017).

3. DATA AND METHODOLOGY

This study covered from May 2016 to April 2019 to obtain enough sample data. The 250 sample population consisted of Filipino (at least 18 years old) retail individual investors living within Metro Manila and having outstanding and active accounts with selected stock brokers at the Philippine Stock Exchange. The survey method was used to determine the retail investors' investment decisions relating to their assessments of the importance of information and its association with their demographic, investment, and trading profiles (Nassaji, 2015). As shown in Table 1, 43.2% of the respondents were of ages 22 to 30, 26.2% were of ages 31 to 40, and 11.2% were of ages 41 to 50. Moreover, 10% were 51 and older, while 9.2% were 18 to 21. About 90% of the investor respondents are male. Monthly incomes from PhP20,000 to PhP60,000 comprised slightly below 50%, while 18.8% earned below PhP20,000. Employees within the PhP60,000 to PhP100,000 income bracket comprised almost 16%, while 18% earned more than PhP100,000. More than half of the participants were bachelor's degree holders; 26.4% earned graduate degrees, while only less than 5% finished high school. Similar to the findings of Campbell (2006) and Grable (1998), educated individuals and privately employed traded stocks more frequently.

Table 1: Demographic Profile of Respondents

Variables	Categories	Frequency	Percent
Age	18 to 21	23	9.2
	22 to 30	108	43.2
	31 to 40	66	26.4
	41 to 50	28	11.2
	51 and older	25	10.0
Sex	Male	222	88.8
	Female	28	11.2
Monthly Income	Below 20,000	47	18.8
	More than 20,000 – 60,000	119	47.6
	More than 60,000 – 100,000	39	15.6
	More than 100,000 – 1,000,000	20	8.0
	More than 1,000,000	25	10.0
Educational Background	High School	11	4.4
	Bachelor's Degree	173	69.2
	Graduate degree	66	26.4
	Private	182	72.8
	Others (Gov't, self-employed, retired)	68	27.2

Table 2, 40.4% of the respondents had been trading between one and five years, and close to 30% for less than a year. Less than 20% traded between six to ten years and more than ten years. More than 50% (53.2%) traded in all sectors, while 28.4% traded in three to five sectors. Approximately 40% invested between 10,000 to 100,000, while 52.8% invested more than 100,000. About the trading profile, 90.80% utilized the online platform (Table 2). Regarding the different sources of market information, (Table 3)

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shows that the internet was a popular reference for market information, with a mean score of 4.86. Ranking second was the broker's online portal, with a mean score of 3.76. Printed materials (M = 2.54) and TV or radio (M = 2.93) were sometimes used, while referrals appear to be the least popular reference, with a mean score of 2.46.

Table 2: Investment and Trading Profile of Respondents

Variables	Categories	Frequency	Percent
Trading Experience	Less than 1	74	29.6
	1 to 5	101	40.4
	6 to 10	45	18.0
	More than 10	30	12.0
No. of Sectors (Industry Focus)	1 to 2	46	18.4
	3 to 5	71	28.4
	All Sectors	133	53.2
Amount of Investment	Less than 10,000	21	8.40
	10,000 to 100,000	97	38.8
	More than 100,000 to 1,000,000	78	31.2
	More than 1,000,000	54	21.6
Trading Platform	Traditional	23	9.20
	Online	227	90.80

Table 3: Frequency of Use of Market Information Sources

Sources	Range	Mean	Std. Dev	Description*
Internet	1 – 5	4.86	4.450	Always
Printed materials	1 – 5	2.54	1.350	Sometimes
TV or radio stations	1 – 5	2.93	1.259	Sometimes
Referrals	1 – 5	2.46	1.182	Seldom
Broker's online portal	1 – 5	3.76	1.292	Often

**Based on the Means: Always:4.50 – 5.00; Often: 3.50 – 4.49; Sometimes: 2.50 – 3.49; Seldom: 1.50 – 2.49; Never: 1.00 – 1.49*

In Tables 4-5, among the five sub-categories of the information surveyed, the respondents rated the financial crisis in the US and Europe as important, with the remaining factors—real interest rates, peso/dollar rates, nominal interest rates, and crossed rates were regarded as moderately important. Notably, regardless of market conditions—be it bullish or bearish- investors' decisions were to maintain their positions, reflected by the predominant utilization of the "hold" strategy, designated as "2." All fundamental information considered by the respondents as important, namely the price-earnings ratio, profit and loss account, operating profits, cash flow statement, total assets, total debt, realized/unrealized earnings, non-operating profit and loss accounts, regular declaration of dividends and return on investment. Investors generally opt to hold their positions, but when considering metrics like price-earnings ratio and return on investment, they tend to sell, especially marked as "3," particularly in bearish markets.
Market trading information, "Hold" was the primary decision during bullish markets across all sub-categories. Conversely, in bearish markets, selling was the predominant choice, except for market outlook, where investors opted to "hold" their investments.

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Tables 4-5: Investment decisions about the importance of market information

Market information	Mean Level of Importance	Description	Investment Decision (Mode)*	
			Bullish	Bearish
Macroeconomic				
Nominal interest rates	3.07	Moderately Important	2	2
Real interest rates	3.15	Moderately Important	2	2
Peso/dollar rates	3.09	Moderately Important	2	2
Crossed rates	2.86	Moderately Important	2	2
Crisis in US and Europe	3.55	Important	2	2
Fundamental				
Cash flow statement	3.68	Important	2	2
Profit and loss account	3.76	Important	2	2
Operating profits	3.71	Important	2	2
Non-operating profits	3.34	Important	2	2
Realized and unrealized earnings	3.65	Important	2	2
Price-earnings ratio	3.94	Important	2	3
Total assets	3.68	Important	2	2
Total debt	3.67	Important	2	2
Declaration of dividends	3.64	Important	2	2
Return on investment	4.05	Important	2	3
Market trading				
Share price volatility	3.76	Important	2	3
Volume of shares traded	3.90	Important	2	3
Volume of Bid/Ask traded	3.96	Important	2	3
Market outlook	3.87	Important	2	2

**Very Imp.:4.50 – 5.00; Important.: 3.50 – 4.49; Moderately Imp: 2.50 – 3.49; Slightly Imp.: 1.50 – 2.49; Not Imp.: 1.00 – 1.49; *1 – Buy, 2 – Hold, 3 – Sell*

Table 6 illustrates the general investment inclinations of respondents in response to bullish or bearish market conditions. A significant majority, totaling 154% of the surveyed population, opted either to buy or hold. However, when the market sentiment turns bearish, the investment undergoes a reversal, with a notable shift towards selling.

Table 6: Distribution of Respondents' Likely Investment Decision When the Market is Bullish or Bearish

Decision	Market is bullish		Market is bearish	
	Frequency	Percent	Frequency	Percent
Buy	75	30.0	48	19.2
Hold	79	31.6	56	22.4
Sell	96	38.4	146	58.4

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4. RESULTS AND DISCUSSION

This section presents the results of the test of hypotheses. Multinomial logistic regression analysis was deemed appropriate since the criterion variable (investors' decision to buy, hold, or sell) is nominal in scale. Each regression model also included the control variables namely, age level (1 to 5), male (1=male, 0=female), monthly income level (1 to 5), educational attainment (1 to 3), and private (1=private employer, 0 = otherwise). The hypothesis test results show the model fitting information and the parameter estimates.

Hypothesis 1: There is no significant relationship between macroeconomic information and investment decisions.

Table 7: Multinomial Logistic Regression Analysis: Model Fitting Information and Likelihood Ratio Tests Results when the Market is Bullish

Variables	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests Chi-Square	df	Sig.
Intercept	468.980	6.015	2	.049
Age	471.163	8.197*	2	.017
Male	468.162	5.197	2	.074
Monthly Income	464.012	1.047	2	.592
Educational Attainment	478.295	15.329**	2	.000
Private Employer	466.859	3.894	2	.143
Nominal rates	481.293	18.327**	2	.000
Real interest rates	465.105	2.139	2	.343
Peso/Dollar rates	466.719	3.754	2	.153
Cross rates	463.334	.368	2	.832
Financial crisis in U.S./Europe	481.582	18.616**	2	.000

Over-all model evaluation: $\chi^2(20) = 73.839, p < .01$
Pseudo R squared: Nagelkerke = 0.288
***predictor is significant at p < .01, * predictor is significant at p<0.05*

Table 7 presents the likelihood ratio test results. The model fits the data well since chi-square (20) = 78.839 is associated with a p-value less than 0.01. The predictors are the macroeconomic information and the control variables. Among the five macroeconomic information sources, nominal rates and the U.S.-European financial crisis were significantly related to the decision of investors to buy, hold, or sell when the market is bullish, as indicated by chi-squared values associated with sig. values less than 0.05. Age and educational attainment are also significant at the 0.05 level.

Table 8 shows a statistically significant association between nominal rates and buying instead of holding the investment (W = 8.534, p < 0.01) and between the financial crisis in the United States and Europe and buying instead of holding (W = 14.474, p < 0.01). This means that the perceived importance of nominal rates increases the odds of deciding to buy rather than hold their investments by 2.601, and the financial crisis in the United States and Europe decreases the odds of deciding to buy rather than hold their investments by 0.371 when the market is bullish. Age, as a control variable, is also statistically significant (W = 7.156, p < 0.01). The odds of deciding to buy rather than hold their investments increase by a factor of 1.637 (almost twice) for investors with older age, when controlling for all other predictors.

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Table 8: Multinomial logistic regression analysis results of Macroeconomic Information affecting investment decision

BULLISH MARKET		B	Std. Error	Wald (W)	df	Sig. (p)	Exp(B)	95% CI Exp(B)	
								Lower Bound	Upper Bound
1	Intercept	-1.838	1.098	2.799	1	.094			
	Age	.493	.184	7.156	1	**.007**	1.637	1.141	2.348
	Male	.161	.518	.096	1	.756	1.175	.425	3.245
	Monthly Income	-.126	.167	.571	1	.450	.882	.636	1.222
	Educational Attainment	.489	.353	1.917	1	.166	1.631	.816	3.259
	Private Employer	-.686	.422	2.640	1	.104	.504	.220	1.152
	Nominal rates	.956	.327	8.534	1	**.003**	2.601	1.370	4.939
	Real interest rates	-.384	.314	1.498	1	.221	.681	.368	1.260
	Peso/Dollar rates	.499	.266	3.529	1	.060	1.648	.979	2.774
	Cross rates	-.003	.300	.000	1	.991	.997	.553	1.795
	Financial crisis in U.S./Europe	-.993	.261	14.474	1	**.000**	.371	.222	.618
3	Intercept	.820	1.028	.635	1	.425			
	Age	.080	.165	.233	1	.629	1.083	.784	1.497
	Male	1.271	.614	4.285	1	**.038**	3.564	1.070	11.874
	Monthly Income	.040	.144	.078	1	.780	1.041	.785	1.380
	Educational Attainment	-.912	.357	6.531	1	**.011**	.402	.199	.808
	Private Employer	.080	.397	.040	1	.841	1.083	.497	2.358
	Nominal rates	-.308	.250	1.520	1	.218	.735	.451	1.199
	Real interest rates	.054	.274	.038	1	.845	1.055	.617	1.806
	Peso/Dollar rates	.247	.235	1.104	1	.293	1.280	.808	2.027
	Cross rates	.146	.271	.287	1	.592	1.157	.679	1.969
	Financial crisis in U.S./Europe	-.168	.174	.928	1	.335	.846	.601	1.189

a. The reference category is: Hold.

Also, in Table 8, Male is statistically significant ($W = 4.285$, $p < 0.05$). The odds that male investors will decide to sell rather than hold their investments are more than 3 times higher than female investors. Educational attainment is also statistically significant ($W = 6.531$, $p < 0.05$). The odds of deciding to sell rather than hold their investments decrease by a factor of 0.402 for investors with higher educational attainment.

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Table 9: Multinomial Logistic Regression Analysis Model Fitting Information and Likelihood Ratio Tests Results when the market is Bearish

Variables	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests Chi-Square	df	Sig.
Intercept	401.248	6.155*	2	.046
Age	398.237	3.144	2	.208
Male	396.167	1.075	2	.584
Monthly Income	395.896	.803	2	.669
Educational Attainment	421.387	26.294	2	.000
Private Employer	400.326	5.233	2	.073
Nominal rates	399.980	4.887	2	.087
Real interest rates	407.418	12.325**	2	.002
Peso/Dollar rates	406.990	11.897**	2	.003
Cross rates	396.985	1.892	2	.388
Financial crisis in U.S./Europe	403.370	8.277*	2	.016

Over-all model evaluation: $\chi^2(20) = 78.585, p < .01$
Pseudo R squared: Nagelkerke = 0.315
**predictor is significant at p < .05, **predictor is significant at p < .01*

Table 9 shows the likelihood ratio test results, indicating that the five macroeconomic information are significantly related to investment decisions except for nominal and cross rates. The parameter estimates in Table 10 show a statistically significant association between the decision to buy rather than hold the investment and the peso/dollar rates. Among the control variables, educational attainment and being employed in a private firm also show a significant association with buying instead of holding. On the contrary, there is a significant association between the nominal and real interest rates and the decision to sell rather than hold when the market is bearish.

Table 10 shows a statistically significant association between cross rates and buying instead of holding the investment (W = 18.184, p < 0.01) and between the financial crisis in the United States and Europe and buying instead of holding (W = 4.131, p < 0.05) when the market is bearish. This means that the perceived importance of cross rates decreases the odds of deciding to buy rather than hold their investments (Exp(B) = 0.094), and the financial crisis in the United States and Europe increases the odds of deciding to buy rather than hold their investments by more than thrice when the market is bearish. As a control variable, monthly income is statistically significant (W = 9.310, p < 0.01). When controlling for all other predictors, the odds of deciding to buy rather than hold their investments decrease by a factor of 0.378 for investors with higher monthly income levels. Employing in a private firm is also a significant predictor (W = 7.582, p < 0.01). The odds that private employees will decide to buy rather than hold their investments are more than 2 times higher than those employed in other types of institutions.

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Table 10: Multinomial logistic regression analysis results of Macroeconomic Information affecting investment decision

BEARISH MARKET[a]	B	Std. Error	Wald	df	Sig.	Exp(B)	95% CI Exp(B) Lower Bound	95% CI Exp(B) Upper Bound
1 Intercept	3.137	1.414	4.922	1	.027			
Age	.312	.337	.858	1	.354	1.366	.706	2.643
Male	-.471	.408	1.330	1	.249	.625	.281	1.390
Monthly Income	-.974	.319	9.310	1	**.002**	.378	.202	.706
Educational Attainment	.009	.361	.001	1	.980	1.009	.497	2.046
Private Employer	.832	.302	7.582	1	**.006**	2.299	1.271	4.158
Nominal rates	.364	.218	2.782	1	.095	1.439	.938	2.205
Real interest rates	.287	.666	.185	1	.667	1.332	.361	4.919
Peso/Dollar rates	.159	.198	.649	1	.420	1.173	.796	1.728
Cross rates	-2.360	.553	18.184	1	**.000**	.094	.032	.279
Financial crisis in U.S./Europe	1.168	.575	4.131	1	**.042**	3.217	1.043	9.925
3 Intercept	2.308	1.152	4.015	1	.045			
Age	.257	.181	2.007	1	.157	1.293	.906	1.843
Male	.527	.507	1.077	1	.299	1.693	.626	4.578
Monthly Income	.030	.162	.034	1	.854	1.030	.750	1.415
Educational Attainment	-.387	.362	1.143	1	.285	.679	.334	1.381
Private Employer	.174	.399	.191	1	.662	1.190	.545	2.602
Nominal rates	.578	.276	4.378	1	**.036**	1.783	1.037	3.066
Real interest rates	-1.042	.337	9.545	1	**.002**	.353	.182	.683
Peso/Dollar rates	-.275	.277	.988	1	.320	.759	.441	1.307
Cross rates	-.311	.297	1.091	1	.296	.733	.409	1.313
Financial crisis in U.S./Europe	.482	.259	3.460	1	.063	1.619	.974	2.690

a. The reference category is Hold.

b. "1" means but, "3" means sell.

Also, from Table 10, a statistically significant association between nominal rates and selling instead of holding the investment ($W = 4.378$, $p < 0.05$) and between the real interest rates and selling instead of holding ($W = 9.545$, $p < 0.05$) when the market is bearish. This means that the perceived importance of nominal rates increases the odds of deciding to sell rather than hold their investments by a factor of 1.173, and the perceived importance of real interest rates decreases the odds of deciding to sell rather than hold their investments by a factor of 0.353.

Hypothesis 2 There is no significant relationship between fundamental information sources and investment decisions.

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Table 11: Model Fitting Information and Likelihood Ratio Tests Results when the Market is Bullish

Variable	Model Fitting Criteria-2 Log Likelihood of reduced Model	Likelihood Ratio Tests Chi-Square	df	Sig.
Intercept	396.531	25.972	2	.000
Age	374.436	3.878	2	.144
Male	374.687	4.129	2	.127
Monthly Income	371.702	1.143	2	.565
Educational Attainment	378.657	8.098	2	.017
Private Employer	376.180	5.622	2	.060
Cash Flow	370.632	.074	2	.964
Profit/Loss	379.707	9.148**	2	.010
Operating Exp.	375.998	5.440	2	.066
Non-Operating Exp.	385.170	14.611**	2	.001
Realized/Unrealized Earnings	388.673	18.114**	2	.000
Price Earnings Ratio	386.621	16.062**	2	.000
Total Assets	379.177	8.619**	2	.013
Total Debts	375.121	4.563	2	.102
Div. Declaration	373.162	2.603	2	.272
Return on Investment	390.476	19.917**	2	.000

Over-all model evaluation: $chi - square(30) = 172.238, p < .01$
Pseudo R squared: Nagelkerke = 0.561
**predictor is significant at p < .05 , **predictor is significant at p < .01*

Table 11 presented the likelihood ratio test results. The model fits the data well since chi-square (30) = 172.238 is associated with a p-value less than 0.01. The results indicated that the following were significantly related to investment decisions based on the significant values associated with each: profit/loss (p = .010), non-operating expenses (p = .001), realized/unrealized earnings, (p=.000), price-earnings ratio (p = 0.000), total debts (p = 0.013), and return on investments (p = 0.000). The null hypothesis regarding this fundamental information was rejected at a 0.05 significance level.

Table 12 indicated that when the market is bullish, a statistically significant association between operating expenses information and buying instead of holding the investment (W = 4.923, p < 0.05) and between the returns on investment information and buying instead of holding (W = 15.744, p < 0.01). Further, the perceived importance of operating expenses information decreases the odds of deciding to buy rather than hold their investments by a factor of 0.356, and the perceived importance of return-on-investment information increases the odds of deciding to buy rather than hold their investments by almost four times (Exp(B)=3.882).

Also, from Table 12, when the market is bullish, a statistically significant association between the perceived importance of the following information and the decision to sell rather than hold: profit/loss (p = 0.011), non-operating expenses (p = 0.033), realized/unrealized earnings (p = 0.000), price-earnings ratio (p = 0.003), total assets (p = 0.011), and return on investment (p = 0.007). The perceived importance of profit or loss, realized and unrealized earnings, and return and investment increase the odds of deciding to sell rather than hold by a factor of 2.675, 2.916, and 2.132, respectively. On the other hand, the perceived importance of the price-earnings ratio, non-operating expenses, and total assets decreases the odds of deciding to sell rather than

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hold by a factor of 0.497, 0.500, and 0.366, respectively.

Table 12: Fundamental Information affecting investment decision

BULLISH MARKET[a]	B	Std. Error	Wald	df	Sig.	Exp(B)	95% CI Exp(B) Lower Bound	95% CI Exp(B) Upper Bound
1 Intercept	-7.174	1.657	18.749	1	.000			
Age	.259	.207	1.554	1	.213	1.295	.862	1.945
Male	-.428	.584	.537	1	.464	.652	.208	2.046
Monthly Income	-.049	.199	.061	1	.805	.952	.644	1.406
Educational Attainment	.634	.411	2.383	1	.123	1.886	.843	4.220
Private Employer	-.246	.474	.270	1	.603	.782	.309	1.978
Cash Flow	.088	.380	.054	1	.816	1.093	.518	2.303
Profit/Loss	.796	.435	3.349	1	.067	2.216	.945	5.196
Operating Exp.	-1.032	.465	4.923	1	**.026**	.356	.143	.887
Non-Operating Exp	.473	.356	1.764	1	.184	1.605	.799	3.224
Realized/Unrealized E	.223	.305	.533	1	.465	1.249	.687	2.271
Price Earnings Ratio	.146	.281	.270	1	.603	1.157	.668	2.005
Total Assets	-.125	.387	.105	1	.746	.882	.414	1.883
Total Debts	-.279	.379	.542	1	.461	.757	.360	1.590
Div. Declaration	-.271	.249	1.184	1	.277	.763	.469	1.242
Return on Investment	1.356	.342	15.744	1	**.000**	3.882	1.987	7.587
3 Intercept	-.824	1.436	.329	1	.566			
Age	-.125	.202	.386	1	.534	.882	.594	1.310
Male	.853	.659	1.675	1	.196	2.347	.645	8.543
Monthly Income	.138	.175	.623	1	.430	1.148	.815	1.617
Educational Attainment	-.564	.402	1.974	1	.160	.569	.259	1.250
Private Employer	.810	.501	2.611	1	.106	2.249	.842	6.008
Cash Flow	.092	.360	.065	1	.799	1.096	.541	2.218
Profit/Loss	.984	.389	6.407	1	**.011**	2.675	1.249	5.729
Operating Exp.	-.508	.444	1.307	1	.253	.602	.252	1.437
Non-Operating Exp	-.692	.325	4.550	1	**.033**	.500	.265	.945
Realized/Unrealized E	1.070	.294	13.231	1	**.000**	2.916	1.638	5.191
Price Earnings Ratio	-.698	.233	8.946	1	**.003**	.497	.315	.786
Total Assets	-1.004	.395	6.455	1	**.011**	.366	.169	.795
Total Debts	.503	.385	1.710	1	.191	1.654	.778	3.514
Div. Declaration	-.350	.228	2.364	1	.124	.705	.451	1.101
Return on Investment	.757	.281	7.240	1	**.007**	2.132	1.228	3.701

a. The reference category is Hold

Table 13 presents the likelihood ratio test results indicating that the following are significantly related to investment decisions based on the significant values associated with each: profit/loss ($p = .008$), non-operating expenses ($p = .018$), price-earnings ratio ($p = .031$), total debts ($p = 0.044$), dividend declaration ($p = .002$), and return on investment ($p = .020$). Among the control variables, educational attainment is statistically significant at $p < 0.01$. The null hypothesis is rejected in terms of this information at the

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0.05 level of significance.

Table 13: Model Fitting Information and Likelihood Ratio Tests Results when market is bearish

Variables	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept	398.233	9.960	2	.007
Age	388.859	.586	2	.746
Male	390.765	2.492	2	.288
Monthly Income	388.299	.027	2	.987
Educational Attainment	407.047	18.774**	2	.000
Private Employer	391.180	2.907	2	.234
Cash Flow	393.000	4.727	2	.094
Profit/Loss	397.901	9.628**	2	.008
Operating Exp.	389.628	1.355	2	.508
Non-Operating Exp	396.268	7.995*	2	.018
Realized/Unrealized E	394.002	5.729	2	.057
Price Earnings Ratio	395.253	6.980*	2	.031
Total Assets	393.039	4.766	2	.092
Total Debts	394.513	6.240*	2	.044
Div. Declaration	401.059	12.786**	2	.002
Return on Investment	396.083	7.810*	2	.020

Over-all model evaluation: $\chi^2(30) = 85.641, p < .01$
Pseudo R squared: Nagelkerke = 0.399
**predictor is significant at p < .05, **predictor is significant at p < .01*

The parameter estimates presented in Table 14, for the two models when the market is bearish. There is a statistically significant association between the decision to buy rather than hold the investment and the following information: profit/loss (Wald = 6.192, p < .05), non-operating expenses (Wald = 4.347, p < .05), realized/unrealized earnings (Wald = 5.303, p < .05), total assets (Wald = 4.446, p < .05), and total debts (Wald = 5.632, p < .05). The perceived importance of profit or loss and total debts increase the odds of deciding to sell rather than hold by a factor of 4.285 and 2.964, respectively. On the other hand, the perceived importance of non-operating expenses, realized and unrealized earnings, and total assets decrease the odds of deciding to sell rather than hold by a factor of 0.474, 0.459, and 0.379, respectively.

Among the control variables, educational attainment is statistically significant at p < 0.01. The odds of deciding to sell rather than hold their investments decrease by a factor of 0.121 for investors with higher educational attainment.

Table 15 presents the likelihood ratio test results indicating that the following marker trading information are significantly related to investment decisions based on the significant values associated with each: share price (p = .001) and market outlook (p = .000). Among the control variables, educational attainment and male are statistically significant at p < 0.01. The null hypothesis is rejected in terms of this information at the 0.05 level of significance.

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Table 14: Multinomial logistic regression analysis results of Fundamental Information affecting investment decisions. Parameter estimates

BEARISH MARKET[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% CI Exp(B) Lower Bound	Upper Bound
1	Intercept	5.221	1.789	8.519	1	.004			
	Age	.114	.229	.246	1	.620	1.121	.715	1.757
	Male	-.167	.741	.051	1	.822	.846	.198	3.616
	Monthly Income	.034	.212	.026	1	.871	1.035	.683	1.568
	Educational Attainment	-2.110	.565	13.948	1	**.000**	.121	.040	.367
	Private Employer	.933	.666	1.966	1	.161	2.542	.690	9.371
	Cash Flow	-.687	.415	2.736	1	.098	.503	.223	1.136
	Profit/Loss	1.455	.585	6.192	1	**.013**	4.285	1.362	13.481
	Operating Exp.	.246	.472	.273	1	.601	1.279	.508	3.224
	NonOperating Ex	-.747	.358	4.347	1	**.037**	.474	.235	.956
	Realized/Unrealized Earnings	-.778	.338	5.303	1	**.021**	.459	.237	.891
	PE Ratio	-.287	.228	1.590	1	.207	.750	.480	1.173
	Total Assets	-.969	.460	4.446	1	**.035**	.379	.154	.934
	Total Debts	1.087	.458	5.632	1	**.018**	2.964	1.208	7.271
	Div. Declaration	.552	.295	3.495	1	.062	1.737	.974	3.098
	ROI	-.513	.361	2.019	1	.155	.599	.295	1.215
3	Intercept	.868	1.255	.479	1	.489			
	Age	.128	.171	.561	1	.454	1.136	.813	1.588
	Male	.665	.506	1.728	1	.189	1.945	.721	5.245
	Monthly Income	.011	.155	.005	1	.945	1.011	.745	1.371
	Educational Attainment	-.328	.343	.916	1	.338	.720	.368	1.410
	Private Employer	-.080	.383	.043	1	.835	.923	.436	1.955
	Cash Flow	.069	.317	.048	1	.827	1.072	.576	1.994
	Profit/Loss	-.009	.288	.001	1	.975	.991	.563	1.744
	Operating Exp.	-.210	.349	.364	1	.546	.810	.409	1.605
	Non-Operating E	.114	.278	.167	1	.683	1.121	.649	1.933
	Realized/Unrealized Earnings	-.371	.241	2.369	1	.124	.690	.430	1.107
	PE Ratio	.212	.181	1.377	1	.241	1.236	.867	1.762
	Total Assets	-.247	.319	.599	1	.439	.781	.418	1.459
	Total Debts	.377	.321	1.375	1	.241	1.458	.776	2.737
	Div. Declaration	-.255	.202	1.587	1	.208	.775	.521	1.152
	ROI	.278	.233	1.423	1	.233	1.320	.836	2.084

a. The reference category is Hold.

Hypothesis 3: There is no significant relationship between market trading information and investment decisions.

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Table 15: Multinomial Logistic Regression Analysis
Model Fitting Information and Likelihood Ratio Tests Results when the market is bullish

Variables	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests Chi-Square	df	Sig.
Intercept	454.654	4.565	2	.102
Age	453.751	3.663	2	.160
Male	460.444	10.356**	2	.006
Monthly Income	451.330	1.242	2	.538
Educational Attainment	466.344	16.256**	2	.000
Private Employer	453.924	3.836	2	.147
Share Price	463.112	13.024**	2	.001
Volume of Share	451.248	1.160	2	.560
Volume Ask/Bid	453.274	3.186	2	.203
Market outlook	465.428	15.340**	2	.000

Over-all model evaluation: $\chi^2(18) = 67.469, p < .01$
Pseudo R squared: Nagelkerke = 0.266
**predictor is significant at p < .05, **predictor is significant at p < .01*

The parameter estimates for the regression model with the importance of market trading information as predictors are presented in Table 16; there is a statistically significant association between the decision to buy rather than hold the investment and market outlook, Wald = 11.496, p < .05. Holding other predictors constant, a one-point increase in the perceived importance of information about market outlook increases the odds of deciding to buy than hold their investments by a factor of 2.313.

Also, Table 16 shows a statistically significant association between the decision to sell rather than hold the investment and the following information: share price and market outlook, both with p-values less than the .01 significance level. Holding other predictors constant, a one-point increase in the perceived importance of information about market outlook increases the odds of deciding to sell than hold their investments by a factor of 1.986 while a one-point increase in the perceived importance of information about share price decreases the odds of deciding to sell than hold their investments by a factor of 0.403. Male and educational attainment are significant control variables, p < .05. The odds that male investors will decide to sell rather than hold their investments are almost 5 times higher than female investors. On the other hand, the odds of deciding to sell rather than hold their investments decrease by a factor of 0.423 for investors with higher educational attainment.

Table 17 presents the multinomial logistic regression analysis to test the hypothesis that there is no relationship between the market trading information and investment decisions when the market is bearish. Adding predictors to a model containing only the intercept significantly improved model fit, $\chi^2(18) = 45.676, p < .05$. These results indicate that the model fits the data significantly better than the model without predictors. Share price and educational attainment are statistically significant at the 5% level.

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Table 16: Multinomial logistic regression analysis results of Market Trading Information affecting investment decisions. Parameter estimates

BULLISH MARKET[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% CI Exp(B) Lower Bound	Upper Bound
1	Intercept	-2.267	1.186	3.655	1	.056			
	Age	.259	.171	2.280	1	.131	1.295	.926	1.812
	Male	-.224	.500	.200	1	.655	.800	.300	2.131
	Monthly Income	-.080	.163	.242	1	.623	.923	.670	1.270
	Educational Attainment	.566	.342	2.736	1	.098	1.762	.901	3.446
	Private Employer	-.537	.402	1.785	1	.181	.584	.266	1.285
	Share Price	-.502	.289	3.027	1	.082	.605	.344	1.066
	Volume of Share	.249	.303	.672	1	.412	1.282	.708	2.324
	Volume Ask/Bid	-.323	.255	1.602	1	.206	.724	.439	1.194
	Market outlook	.839	.251	11.130	1	**.001**	2.313	1.413	3.787
2	Intercept	-.183	1.149	.025	1	.873			
	Age	-.029	.166	.031	1	.860	.971	.702	1.344
	Male	1.525	.625	5.951	1	**.015**	4.594	1.349	15.637
	Monthly Income	.096	.154	.383	1	.536	1.100	.813	1.489
	Educational Attainment	-.860	.370	5.398	1	**.020**	.423	.205	.874
	Private Employer	.199	.408	.238	1	.626	1.220	.548	2.717
	Share Price	-.909	.271	11.241	1	**.001**	.403	.237	.685
	Volume of Share	.275	.267	1.054	1	.305	1.316	.779	2.223
	Volume Ask/Bid	.080	.241	.112	1	.738	1.084	.676	1.736
	Market outlook	.686	.224	9.374	1	**.002**	1.986	1.280	3.081

a. The reference category is Hold.

The parameter estimates for the regression model with the importance of market trading information as predictors when the market is bearish are presented in Table 18; there is a statistically significant association between the decision to buy rather than hold the investment and share price, Wald = 6.320, $p < .05$. Holding other predictors constant, a one-point increase in the perceived importance of information about share price decreases the odds of deciding to buy than hold their investments by a factor of .448. Educational attainment is a statistically significant control variable, W = 17.814, $p < .01$. The odds of deciding to sell rather than hold their investments decrease by 0.448 for investors with higher educational attainment.

Also, Table 18 shows a statistically significant association between the decision to sell rather than hold the investment and Males. That is, the odds that male investors will decide to sell rather than hold their investments are almost 3 times higher than female investors.

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Table 17: Multinomial Logistic Regression Analysis
Model Fitting Information and Likelihood Ratio Tests Results when market is bearish

Variables	Model Fitting Criteria -2 Log Likelihood of Reduced Model	Likelihood Ratio Tests		
		Chi-Square	df	Sig.
Intercept	423.871	6.255	2	.044
Age	420.909	3.293	2	.193
Male	422.760	5.144	2	.076
Monthly Income	418.075	0.459	2	.795
Educational Attainment	442.255	24.638**	2	.000
Private Employer	422.009	4.392	2	.111
Share Price	424.665	7.049*	2	.029
Volume of Share	420.293	2.677	2	.262
Volume Ask/Bid	420.384	2.768	2	.251
Market outlook	422.080	4.463	2	.107

Over-all model evaluation: $\chi^2(18) = 45.676, p = .000$
Pseudo R squared: Nagelkerke = 0.195

5. CONCLUSION AND RECOMMENDATION

The majority of respondents were male millennials with limited stock investing experience. Active participation of educated individuals from middle-income groups, predominantly employed in the private sector. Efforts to educate and empower individuals from diverse demographic backgrounds, particularly women and those from lower-income groups, should be prioritized to foster broader participation and inclusivity in the stock market.

Return on investment (ROI), the volume of Bid/Ask traded, and the price-earnings ratio (P/E) were the top three rated as *important* information out of the 19 identified information items. ROI and P/E are the most important information, indicating that most investors measure an investment's efficiency or profitability.

Macroeconomic information is partially significant in investment decisions. Not all information under fundamental was significant. Market trading information becomes insignificant when a bearish market condition influences investor.

In general, investors weigh all information, but during market shifts, they often prioritize market sentiment over other factors, impacting their investment choices. As part of empowering retail investors, the PSE must provide training and continuous education programs in fundamental analysis, macroeconomics, and trading factors to enable investors to make rational investment decisions.

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Table 18: Multinomial logistic regression analysis results of Market Trading Information affecting investment decisions. Parameter estimates

BEARISH MARKET[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% CI Exp(B) Lower Bound	Upper Bound
1	Intercept	3.726	1.530	5.930	1	.015			
	Age	.376	.215	3.043	1	.081	1.456	.955	2.221
	Male	1.111	.674	2.715	1	.099	3.036	.810	11.378
	Monthly Income	.127	.195	.422	1	.516	1.135	.774	1.664
	Educational Attainment	-2.276	.539	17.814	1	**.000**	.103	.036	.296
	Private Employer	.755	.549	1.891	1	.169	2.127	.725	6.235
	Share Price	-.803	.320	6.320	1	**.012**	.448	.239	.838
	Volume of Share	.373	.314	1.411	1	.235	1.452	.785	2.686
	Volume Ask/Bid	.471	.286	2.706	1	.100	1.602	.914	2.808
	Market outlook	-.567	.296	3.670	1	.055	.567	.318	1.013
2	Intercept	1.392	1.172	1.412	1	.235			
	Age	.139	.175	.626	1	.429	1.149	.815	1.620
	Male	1.087	.488	4.965	1	**.026**	2.965	1.140	7.715
	Monthly Income	.039	.158	.063	1	.802	1.040	.764	1.417
	Educational Attainment	-.396	.333	1.414	1	.234	.673	.350	1.293
	Private Employer	-.192	.378	.258	1	.611	.825	.394	1.730
	Share Price	-.513	.265	3.748	1	.053	.599	.356	1.006
	Volume of Share	.433	.268	2.608	1	.106	1.542	.912	2.608
	Volume Ask/Bid	.296	.242	1.497	1	.221	1.344	.837	2.159
	Market outlook	-.430	.241	3.182	1	.074	.650	.405	1.043

a. The reference category is Hold.

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