Determinants of Money Market Investment Decisions

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Abstract:
The need for a thorough analysis using a number of factors to determine what influences the investor; regardless of the diverse information available justifying the rationality or irrationality of the investor, as most studies done are capital market related. This study identifies the determinants of individual investment decisions in the money market, concentrating on the central region of Ghana. Primary data was used for the study. The data was subjected to multiple regression analysis, using SPSS software. The independent variables considered was social, economic and risk factors, the descriptive statistics for the entire variables were ascertained and correlation analysis done to establish the relationship between the factors. The study revealed that social factors influences individual investors decision making in the central region to invest in money market instrument than economic or risk factors. It also revealed that the number of individual investors are male dominated, and majority of them are between the ages of 31 years to 35 years. The result indicated that 68.52% of these investors invest in Treasury Bill (T'Bill) more than the other money market instruments. It is recommended that institutions take advantage of the social factors to channel needed investment information to aid the individual investor make the right choice.
Key words: *Investment, money market, central region, determinants and decisions*

Introduction
According to Seawell, behavioural finance studies the character of financial practitioners and its subsequent impact on markets (Seawell, 2010), the conventional financial theory argues that people are rationally "wealth maximizes'', albeit there are circumstances where our decisions are influenced by emotions and psychology, causing us to behave in unpredictable or irrational ways.
The money market has become another alternative for investors, according to Gomez (2006) money and markets have developed and changed due to civilization, money has evolved from the use of seeds, cowry shells, gold dust to gold and silver coins into complicated instrument used by countries and its inhabitants on a daily basis. The entire decision-making process for an investor becomes a battle between the brain and emotions; this according to Byrne and Brooks can lead to investors making decisions which are seen to be biased

Investment plays a critical role in the development of the economy and it has come to bear the changing behaviour of investors, thus it has become necessary to know what influences an investor to investment in money market instruments and that is the essence of this study.

Review of Related Literature

Many scholars have researched into factors that influence investors' behaviour. According to Lease et al. (1974) he came out with findings indicating that investors preferred a balanced and well diversified income with long term capital appreciation securities of dividend income rather than short-term gains, that age, income and sex played a major factor in framing investors' decision. Investors also prefer holding stocks with calculated risk in shape of mutual funds due to the volatile movement of the stock markets; this was the findings of Walia et al. (2009) after evaluating investor's perception towards the risk-return trade off. It was also found that males show more interest in risky avenues than females, that exposure to different financial investment avenues also influences one in his decisions and strategies towards investments; it was found that individuals express their personal values through their decision making regarding investment (Agyemang and Ansong, 2016)

A study conducted in Australia, 2007, indicated that most investors gave preferences over institutions that were socially and environmentally inclined (Australian Securities Exchange, 2007). According to Sjoberg and Engberg, 2006, it was realised that people attached emotions to money matters and financial decision

making under conditions of uncertainty. Jagongo and Mutswenje (2014) investigated on factors that influence investment decisions of individual investors at the Nairobi Stock Exchange over a sample size of 42 investors. Using a structured questionnaire administered to individual investors on the Nairobi Exchange. The collected data was analysed using frequencies, mean scores, standard deviation, percentages, Friedman's test and factor analysis techniques, the result showed that reputation of a firm, firm's status in industry, expected corporate earnings, profit and conditions of statement, past performance of firm's stock, price per share, feeling on the economy and expected dividend of the investor influences the individual investor.

Ton and Dao (2014) used the theory of behavioural finance to examine the factors of individual investors' psychology and its effect on investment decisions on the Vietnam Stock Exchange (VSE) using 422 investors for the sample size. The result showed; overconfidence, optimism, herd behaviour, psychology of risk and pessimistic influences investment decisions.

Naa-Idar et al (2012) run a time series analysis of determinants of private investments in Ghana between the years 1960-2010, using the co-integration and error correction modelling technique, the result indicated that inflation, exchange rate, public investment, GDP, trade openness, aid, credit and external debt in the short run and long run has a significant effect on the level of private investment.

Another study of econometric analysis of determinants of private investment in Nigeria by Agu (2015) indicated that increased lending rate, reduced public expenditure, reduced savings, political instability and inadequate infrastructure has slowed the growth rate of investment in Nigeria, showing a positive correlation between growth rate of income remaining after deduction of taxes and real interest rate of disposable income and real interest rate on bank deposits.

Loza and Acosta also came out with suggestions through a study conducted on the short and long run determinants of private investment in Argentina. The result suggests that shocks in returns (that is exchange rate, trade liberalization) and aggregate demand determines investment decisions in the short run whiles well-developed financial and credit markets and perspectives of fiscal sustainability determines investment decisions in the long run.

Nyangara and Bayail (2013), using correlation analysis and multi co-linearity in regression analysis pointed out political risk, interest rate, GDP, debt servicing and trade terms played a role as key determinants of private investment.

Shaheen and Ali (2016) from their study of analysing determinant of private investment in Pakistan using the data from 1980-2011 and the Engle granger Co-integration technique came out with the findings that savings, credit and gross domestic affect investment positively whiles inflation affects private investment in Pakistan negatively.

Edusei-Mensah (2015) sought to identify the determinants of investment decisions of firms listed on the Ghana Stock Exchange from the period of 2006-2013 using 9 companies as the sample size. Regression analysis was used to analyse the data, the result showed that investment decisions of listed Ghanaian firms were significantly affected by the level of cash, existing resources reference to fixed assets and exchange rate.

Changes in demographic factors like age, income, education and occupation had influence on individual's investment avenue preferences according to Geetha and Vimala (2014)

Money Market Investment

The money market is a wholesale debt market for low-risk, highly-liquid, short-term instrument. This market is dominated mostly by government, banks and financial institutions.
Safe investments which return a relatively low interest rate for temporary cash storage or short-term time horizons.
Money market can be of two types; namely organized money market and unorganized money market

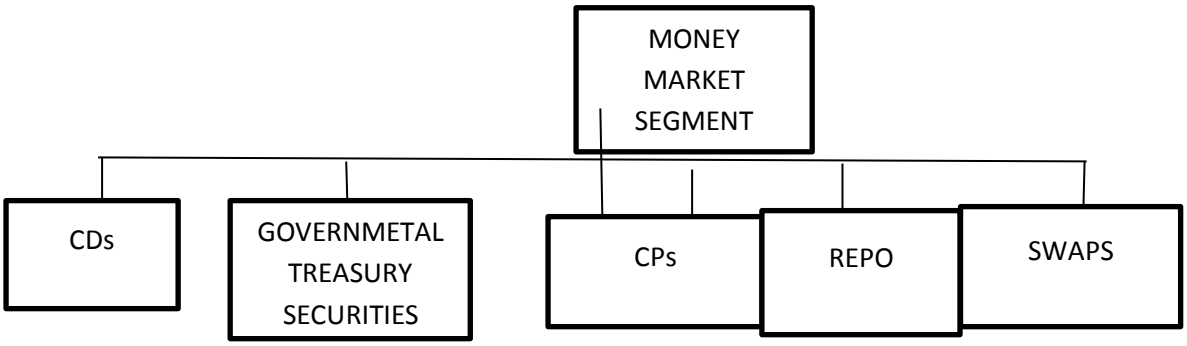


Figure 1 Money Market

Money market in the Ghanaian financial market is made up of commercial papers, banker's acceptance and treasury bills. These are mostly characterised by its short-term nature, low risk, high liquidity and closeness to money.

Characteristics of Money Market Instruments

Treasury bill: popularly known as T-bill are short-term money market instrument having government backing as they are issued by government. These are termed as risk-free and characterised with maturity from first week to twelve (12) months. It interests rate serves as the bench mark default-free interest rates.

Commercial Paper (CP): is a short-term debt instrument which is typically unsecured and issued only by large, credit worthy and well-known companies whose aim is to provide a source of liquidity or finance the investment of the company.

Banker's Acceptance (BA): these are issued and traded at a discount from face value on the secondary market. It is a payment agreement accepted and guaranteed by a bank and drawn on a deposit at the bank for future payment. This type of money market is mostly used in international trade which are mostly backed by invoices, bill of lading etc. (Darškuvienė, 2010).

Fixed Deposit (FD): These are also money market instrument issued by banks, most fixed deposit has a start-up initial deposit from 500GHS and above, this money can be fixed ranging from one month to a year with an interest rate slightly higher than the Treasury bill rate.

Research Methodology

The survey design was used for the study. Survey Design allowed the researcher to examine or describe in details the characteristics of the variables under study. According to Saunders et al., (2007, cited in Boamah 2014), survey design can be defined as a research for which the purpose is to produce an accurate representation of persons, situations or events and this was what the study seeks to find, it had the merits of giving room for generalization, and prediction of results.

Population

The population for the study was individual adult investors of money markets in the Central Region of Ghana. Central Region has a population of 2,201863 out of the 24,658,823 population of the country, 898,136 of the central region's population are economically active, indicating such groups can invest. Central region was chosen as the study area as no study on investment has been done and it also saw an increment in its population of 38.1% making it the highest over the 10-year period (GSS, 2012).

The total percentage of the sampled towns is 26.58% of the total population of the Central Region.

Sample

The sampling size was obtained using the method by Krejcie and Morgan (1970), they gave the formula as $s=X^2NP\ (1-P)/d^2\ (N-1) + X^2P\ (1-P)$ and worked out the sample size to use with a given population.The sample size for the research was 300.

Finally, a purposive sampling technique was used to sample respondents from the various towns, this was so, due to the nature of the research, and individual adult investors were the main target with the financial institutions they invest in.

Sources of Data

The study adopted the use of primary data as it seeks to collect data directly from the respondents to understand the rationale behind the investment decisions they make. The instrument used in gathering the data was a structured questionnaire, the questions were standard and it solicited for answers in line with the research questions. Thus, data was obtained from individual investors in Kasoa, Winneba, Cape Coast, Swedru and Mankessim alli the central region of Ghana.

The Primary Sources which are usually raw data was measured with questionnaires and interviews. The researcher personally obtained the information directly from the respondents by issuing a well-structured questionnaire with both open and closed ended questions to capture important information. The use of primary data aided the researcher in collection of information for the specific purposes of the study. Primary Data, to Gates and McDaniel (1999), are surveys, interviews, observations, or experiments done to solve a particular problem under investigation which is either qualitative or quantitative.

Data Analysis

At the end of the data collection, the data obtained were all properly checked in order to identify missing questionnaires, however, none was found. The structured questionnaires which were quantitative data in nature were entered into Statistical Package for Social Science (SPSS) version 20 and were statistically tested. Descriptive Statistics were used to analyse and summarize the numerical data.

Exploratory Factor analysis was used to analyse the underlying multiple observe items (factors) which have similar pattern of responses. Exploratory factor analysis as a statistical technique can be used for data reduction and explores the underlining theoretical structure of the phenomena. It is used to identify the structure of the relationship between the variable and the respondent.

Summary of Literature Review

The literatures reviewed shows both the cognitive and emotional errors that influences individual investors, most of the issues discussed political risk, GDP, income, interest rate, reputation of firms among others influences investors decision. The literatures concentrate more on the economy and the capital market. It discusses biases such as loss aversion, regret avoidance, mental accounting, over confidence, herd behaviour which shows how rational investors can be in making investment decisions.

There is not much literature on determinant of investment in the money market, not from any other country or Ghana as earlier indicated, most studies focus on the capital market and this is the gap this study seeks to fill, why individuals will invest in money market instrument rather than capital market.

Presentation of Results and Summary of Findings

A total of Three hundred (300) questionnaires were distributed, but Two Hundred and Seventy (270) representing a response rate of 90% were returned; meaning 270 respondents completed the survey, comprising both (males and females). A response rate of 50%, to Mugenda and Mugenda (1999) is adequate for analysing and reporting; a rate of 60% indicated as good and a response rate of 70% and over as excellent. Thus, the response rate of 90% for this study is excellent. The analyses performed on the data collected included, descriptive statistics (frequency, percentages, mean, standard deviation and bar chart), factor analysis and multiple regression analysis.

The respondents were 18 years and above in age, 189 males and 81 females. 108 of the respondent were tertiary certificate holders, and economically viable. The responds rate showed a higher percentage of individuals who have existing investments in money market with financial institutions and a lesser at the verge of taking one up.

Table 1: Summary of Descriptive Statistics of the Factors that influence money market investment decisions in Ghana

Item	N	Mean	Std. Deviation
Focus on Possible gains or losses	270	1.99	.761
Investment risk per financial amount	270	2.23	1.173
Influenced by risk appetite	270	1.73	.831
Decisions to invest in either capital market instrument or money market investment.	270	1.77	.424
Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions.	270	2.30	.871
Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping)	270	2.83	1.125
What influence you to invest (suggestions from peers, suggestions from relatives, information from financial reports, experience, the bank's financial standing and reputation influence me to invest)	270	3.66	1.331
Economic Primary investment objective (to ensure the security of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement)	270	2.94	1.254
A high-income earner will invest in money market.	270	1.09	.359
Role of interest rate in money market decision making.	270	1.23	.419

The outcome of factor Matrix of factor analysis reveals that the most important factors that influence money market investment choices are: Focus on Possible gains or losses, Investment risk per financial amount, Decisions to invest in either capital market instrument or money market investment, Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions, Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping), Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement) and Role of interest rate in money market decision making.

Table 2: Summary of the Goodness-of-fit Test

Chi-Square	df	Sig.
17.367	18	.498

The Goodness-of-fit Test explains if the sample data (correlations) are likely to arise from three correlated factors. In this situation we want the probability value of the Chi- Square statistic to be greater than the chosen alpha (generally 0.05), written as (0.498 > 0.05). Based on results in table 2, the three-factor model is a good description of the data and the results revealed by our sample of 270 respondents confirms a degree of correlation between the factors identified to influence money market investment decisions.

Multiple Regression analysis

A Multiple Regression Analysis was conducted to investigate the relationship between the factors (Risk, Social, and Economic). The multiple regression estimated how the seven (7) items with strong weights under the independent variables (i.e. Risk, Social and economic factors) relate to the dependent variable (money market investment). The multiple analysis gave out results on the Model Summary, ANOVA, R squared value and the Coefficients. Summary of results are presented in table 3.

Table 3: Summary of Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.284[a]	.081	.056	.573	.081	3.278	7	262	.002	.499

Predictors: (Constant), Focus on Possible gains or losses, Investment risk per financial amount, Decisions to invest in either capital market instrument or money market investment, Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions, Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping), Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement), Role of interest rate in money market decision making.

Dependent Variable: Money Market Investment Decision

In the summary of the Model above in table 3, The F Value or F ratio (3.278) is the test statistic used to decide whether the model as a whole has statistically significant predictive capability. The degrees of freedom (df) which is (7,262) was used to calculate the Significant F. change value which is also the level of significant given by the Error of the Degree of Freedom (df) from the ANOVA table. The Sig. value (0.002) tells us whether a variable has statistically significant predictive capability in the presence of the other variables. Thus, from the table above, it indicates that all the variables have statistically significant predictive of the dependent variable (money market investment decision, which is constant).

R^2 (.081) is the squared multiple correlation coefficient or Coefficient of Determination. Therefore, R^2 is the ratio of the Regression sum of squares to the Total sum of squares. R-squared provides an estimate of the strength of the relationship between the model and the response variables (independent variables). This means, Focus on Possible gains or losses, Investment risk per financial amount, Decisions to invest in either capital market instrument or money market investment, Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions, Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping), Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement) and Role of interest rate in money market decision making explains 8.1% of observed change in money market investment decisions. Nonetheless, the overall F-test determines whether this relationship is statistically significant and from the ANOVA table in table 14 below, the P value for the overall F-test is less than the significance level, therefore, the R-squared (R2) value is significantly different from zero.

Table 4: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.534	7	1.076	3.278	.002[b]
	Residual	86.007	262	.328		
	Total	93.541	269			

a. Dependent Variable: Money Market Investment Decision

b. Predictors: (Constant), Focus on Possible gains or losses, Investment risk per financial amount, Decisions to invest in either capital market instrument or money market investment, Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions, Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping), Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement), Role of interest rate in money market decision making.

ANOVA findings (Sig- value of 0.02) in table 4 show that there is correlation between the predictors' variables (Focus on Possible gains or losses, Investment risk per financial amount, Decisions to invest in either capital market instrument or money market investment, Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions, Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping), Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement), Role of interest rate in money market decision making and response variable (Money Market Investment Decision)

Thus, Table 4 shows the results of the regression coefficients required to form the multiple regression models.

Table 5: Regression coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.196	.293		7.498	.000
	Focus on Possible gains or losses.	-.058	.046	-.075	-1.256	.210
	Investment risk per financial amount	.043	.030	.085	1.420	.157
	Decisions to invest in either capital market instrument or money market investment	.301	.085	.216	3.556	.000
	Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions.	.072	.041	.106	1.770	.078
	Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement)	.042	.028	.088	1.468	.143
	Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping),	.050	.032	.096	1.566	.119
	Role of interest rate in money market decision making and response variable (Money Market Investment Decision)	.064	.085	.045	.750	.454

a. Dependent Variable: Money Market Investment Decision (MMID)

Focusing on the Standardized Coefficients or Beta (β) Regression results in table 4 above, the multiple linear regression models are explained as follows.

The multiple linear regression models indicate that all the independent variables have positive coefficient, except "Focus on possible gains or losses" which had negative coefficient. Thus, the regression results reveal that there is a positive relationship between dependent variable (money market investment decision) and independent variables (Investment risk per financial amount, Decisions to invest in either capital market instrument or money market investment, Impact of social factors such as education, marriage, occupation, income and wealth on money market decisions, Social reasons for investing in money market (to meet family needs in the future, to meet emergency needs, to live a safe and secured life, to generate capital growth for housekeeping), Economic Primary investment objective (to ensure safety of my principal, to generate income, to achieve a particular investment goal, to accumulate assets for retirement), Role of interest rate in money market decision making and response variable (Money Market Investment Decision. While, there is a negative relationship between the dependent variable (Money market investment decision) and independent variable (Focus on Possible gains or losses).

In multiple regressions, the size of the coefficient for each independent variable gives the size of the effect the variables are having on the dependent variable, and the sign on the coefficient (positive or negative) gives the direction of the effect. The coefficient tells how much the dependent variable is expected to increase when that independent variable increases by one, while holding the other entire independent variables constant. Thus, this outcome reveals that, all latent variables identified for economic factors, risk factors and social factors have a positive correlation with money market, this means, as these factors increase, money market increases and vice-visa.

Demographic Findings

The findings of the study showed male dominance in the money market investment than female, indicating 70% of males investing in money market than females, 30.4% of them are between the ages of 31-35 years representing the highest adult age group investors.

Risk influence money market investment choices

The field of behavioral finance has developed due to the rise in financial market anomalies, successful investment has been attributed to investors staying rational with their investment decisions, choosing which financial market to invest in, however; this has been proven otherwise in practice. Per the findings, majority of the investors due to their risk appetite invest in the risk free financial tool which is the treasury bill (T'bill), representing 68.52% of the money market investment tool. In terms of risk having an influence on their investment choices, 35.2% invest with a small amount of their funds and 45.9% are comfortable in investing with investment banks.

Social factors that influence investment decisions in money market

The results indicated a higher percentage of the respondents having experience and knowledge about treasury bill, commercial paper representing 37.8%. Investors take opportunity of the short-term nature of money market tools to meet emergency needs, accumulate wealth to live a comfortable life and to secure financial growth for future use. It also shows to a large extent the influences of social factors like education, marriage, relatives and peers have on informing the choice of investment.

Economic factors that influence money market investment decisions

Economic primary investment objectives that seeks to ensure the safety of investors' principal, generation of income, achieve a particular investment goal, accumulate asset for retirement, high interest rate also plays a major role in an investor investing in money market.

Inferential Statistics

Inferential statistics which primarily comprised of Exploratory Factor Analysis and Multiple Regression Analysis was used to obtain results for the research questions. Factor analysis was performed in order to recognize certain properties of correlations or to check for interdependence among the factors (Social, Economic and Risk Factors). factor analysis was appropriate for analyzing "How does risks influence money market investment choices?", and "How does social factors influence investment decisions?" and research question t "How does economic factors influence money market investment decisions?". Thus, the initial step was a correlation matrix which was conducted to check for factor interdependency, after which an exploratory factor analysis was conducted to cut down data to a reasonable set of summary variables and to examine the underlining theoretical structure of the phenomena. Results indicated that the correlation coefficients are nearer to one, indicating a relationship between the variables although the sign of the coefficient or direction differ in terms of being positive and negative

The findings indicated a correlation between the independent factors (economic, risk and social), the variables through multiple linear regression had a positive coefficient thus, confirming the relationship that exist between the variables and money market investment decisions.

Conclusion

The following conclusion was made from the research, that individual investors in money market in the central region were mostly influenced by social factors which had the highest mean score of 3.66 inferences

of the reputation of the financial institution, the advice from peers and family playing a major role in decision making. Risk per financial amount to be invested had an influence in determining which financial market to invest in, primary economic investment objectives taking into consideration the interest rate at play also had a positive role in determining the financial instrument to invest in, risk relating to the possibility of gain or loss plays a negative impact in terms of decision making. The result indicates that social, economic and risk factors play a major role to determine the financial market to invest in, in central regional part of Ghana.

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