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# The Influence of Overconfidence on Investment Decision: A Study of Investor Behavior in Indonesia

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**Abstract**

Overconfidence is one of the most common investment biases exhibited by investors. The bias-transaction activity will cause unfair trading. The influence of various factors on overconfidence is examine. This research presents a novel perspective by suggesting a relationship between risk characteristics and social media. Data were collected from 165 Indonesian Stock Exchange investors in December 2023, using the Ordinary Least Squares (OLS) method. The results show: firstly; the overconfidence level among investors is moderate. Social media moderately influence investors, who generally exhibit a risk-neutral character. Secondly, no associations between gender and selected demographic factors were founded. In this case, male and female genders are the same for education, generation, risk characteristics, and investment strategy factors. Thirdly, an association between genes and risk characteristics. Fourthly, by OLS regression, only strategy factor influences overconfidence, but in the reverse direction. These results show that investors with technical strategies are more overconfident.

**Keywords:** Overconfidence; Social Media; Risk Character; Gene Z, Investment Strategy

## 1. INTRODUCTION

Investors make investment decisions depend on two things, namely: investor character and the information. However, the decisions taken may be biased. (Zahera & Bansal, 2018) show that there are seventeen (17) biases and overconfidence is the most frequently researched bias. Merkle, (2017) said that overconfidence will encourage risk-taking, less diversification, and increased trading activity. In this case, overconfidence can take the form of overestimation, over-placement,

and over-precision. (Barber et al., 2019), show that overconfidence will result in increased leverage, and increased trading transactions but decreased performance. (Lee et al., 2016) refer to overconfidence (which in turn gives rise to over-react) to explain the phenomenon of large trading volumes followed by low returns. Zaiane (2013) overconfidence occurs because of two things (i) investors have an attitude of overconfidence regarding the accuracy of the private information they have; (ii) 'self attribution' bias which causes overconfidence, can vary with the results realized. What Lee et al., (2016) and Zaiane (2013) stated raises the asymmetry of trade transactions between gainers and losers. Deaves et al.,( 2010) refer to overconfidence regarding forecasts, where a weak forecaster can be caused by overconfidence. Overconfidence can occur when investors emphasize private information on selected shares. Ida & Okui (2019) show how information can reduce overconfidence. Ida and Okui found that providing perfect information will reduce overconfidence bias. Deaves et al., (2019) stated that overconfidence can result in suboptimal financial decision-making and can be referred to as excessive trading, under-diversification, excessive entry into markets, allowing investment to be dictated by cash flows, over-investment. Ho (2011) stated that overconfident investors prefer to invest in small stocks. The above research shows the impact of overconfidence and its causes, where the causes refer to the investors themselves.

Tokar Assad (2015) shows that (knowledge and confidence) in financial literacy influence financial behavior, where high financial literacy encourages investors to take risky actions. Kramer (2016) shows that investors with high financial literacy have high trust, so they do not need a financial advisor. What Kramer stated is in line with Asad, but the context is different. Devi et al., (2020) 12 show the relationship between cognition and interest in investment. Investors' lack of understanding causes investors to invest in mutual funds. Devi et al., (2020) would agree with Tokar Assad (2015) and Kramer (2016). Paravisini et al (2010) 13 stated that if investors are richer, they will tend to be risk averters. This impact contradicts the concept of relative risk averter (RRA), where for a unit increase in wealth, the level of risk faced will be different. (He et al., 2019) showed that the relationship between risk characteristics and returns was found to be positive. This means that investors with (high) risk characteristics will get higher returns. Perveen et al., (2020) show the influence of risk characteristics and investment experience on investment decisions. The results show that extroped investors are more accepting of risk. He et al., (2019) and Renault (2017) show that there is a relationship between investor sentiment and stock returns. The above research shows that regarding financial literacy and risk characteristics, high financial literacy and risk-loving investors will tend to be overconfident.

Concerning social media, it is now inherently linked to the investment practice. Li et al., (2014) show the impact of media on stock returns. Information about the company's fundamentals will increase investors' knowledge, further influencing investment decisions. Another thing is public sentiment, which has an emotional impact and also influences investment decisions. Cookson & Niessner (2020), with Twitter data, shows investor sentiment regarding the level of disagreement between investors and subsequently transaction activity. Kölbel et al., (2017); show the impact of news on the Company's financial risk, where, for investors, bad news is more interesting than good news. What Kolber et al stated is in line with research by Aharony & Swary (1980) which states that good news is responded to well, and bad news is responded to worse. For this, companies need to increase 'good' activities such as CSR and others. (Sul et al., 2017) showed the impact of tweets (sentiment) on stock returns (S&P 500) and found an impact on tomorrow's returns up to 10 days later. Thus investors are not always rational. (Pelster & Gonzalez, 2016) show that investors copy/mirror other investors regarding investment decisions. Yang & Mo (2016) show that the financial community has a relationship with the financial market. Thus groups will influence investment decisions. Blankespoor (2018) shows that investors respond

with transactions in the capital market. In addition, social media often encourages informal interactions, thus encouraging more subjective information. Bizzi & Labban, (2019) stated that social media influences (i) resource allocation for transactions; (ii) the potential to follow 'peers'. Investors who are very social media (high-social media) will be more influenced. In terms of the above description, it can be summarized regarding the influence of social media, as well as the impact of peers on investment decisions.

This research on overconfidence examines the context of investors in Indonesia. The underlying considerations are: (i) the Indonesian capital market is large, the number of investors is 4.4 million (2022); (ii) post-COVID, many young investors are entering the market. Two fundamental things in investment, namely: investors (investor risk characteristics) and social media are our concerns. This research emphasizes overconfidence because it is a prominent behavior and often fueled by various incentives, e.g. training and seminars, that promote the potential high returns in the stock investments. The results of this study will offer an overview of investment behavior in Indonesia, which can as a reference for comparison in other countries. This paper will provide critical insights into investor behavior with an emphasis on two important variables, namely (risk characteristics) and social media. Due to the inherent of risk characteristics and the strong impact of social media information, this paper gives a novel approach by introducing a multiplicative relationship between the risk characteristics and social media influence.

## 2. LITERATURE REVIEW

### 2.1. Risk Character and Overconfidence

The character of risk is fundamental in investment, where investment decisions are indicated by the utility and influenced by investor risk aversion (Bodie, Kane, Marcus). An investor, apart from risk characteristics, also has several other demographic variables attached to him, namely: gender, and education. There is a relationship between these variables and investment decisions and then the Overconfidence bias. Investors who are risk-takers will interpret the risk as lower, then they can act overconfident. Men tend to have an attitude of overconfidence, which is due to differences in thinking patterns and preferences Bouteska & Regaieg (2020) and Belmi et al.,(2019), while Zahera & Bansal (2018) referring to Matsumoto et al, show the opposite. Educated investors will have higher knowledge/information and therefore tend to be more overconfident. (Belmi et al., 2019), conducted research on SME owners, and the results showed that OC tends to occur in 'high social class' groups, where high social class is one of the factors indicated by a higher level of education. Kramer (2016) stated that investors tend not to need financial advisors. Devi et al., (2020) show that investors who do not understand will choose mutual fund investments and tend not to be overconfident. In terms of understanding (cognition), there are 4 potential cognitions that investors can obtain, namely cold cognition, hot cognition, social cognition and meta cognition. Zahera & Bansal (2018) summarize overconfidence as follows: (i) is inversely related to openness, (ii) decreases in the long term; (iii) influence investor decisions, (iv) financial literacy will increase Overconfidence; (v) Overconfidence will also tend to be 'less reactive' to various information/events, because of confidence in their knowledge. (Tokar Assad, 2015) shows that groups with high knowledge and high overconfidence will have a greater impact on financial behavior (risks taken), compared to other groups. In our opinion, the relationship stated by Asaad is not linear.

### 2.2. Social Media, Investing Decision and Overconfidence

Social media is a phenomenon that has a strong influence on financial market transactions. Cookson & Niessner (2020) conducted a study regarding social media platforms (Twitter), paying attention to these posts and dividing them according to various criteria, namely: market situation (bullish, bearish, unclassified), investor behavior data: namely: Investment Philosophy, holding

period, as well as experience. Cookson & Niessner (2020) focuses on the 'disagreement' that occurs between investors. Philosophically, investment groups can be divided into fundamental, technical, momentum, Global Macro, Growth and Value. Based on experience, investor groups can be divided into: novice, intermediate, and professional; and based on the holding period, investment groups can be divided into: day traders, swing traders, position traders, and long-term investors. The focus of Cookson & Niessner research was to measure disagreement on returns and find positive results between sentiment and trading volume.

De Souza et al., (2018) examined the effect of information, media coverage, (investor attention) on trading volume. The results of his research show that only negative news affects the trading volume of the company when the stock index level is high. The impact of negative news is in line with research from Kölbel et al., (2017). In our opinion, uninformed investors will tend to panic as a high response to negative news. Antweiler & Frank (2004) refers to the number of messages in the media that are positively related to return predictions. They use the phrase disagreement to explain this phenomenon. This refers to Karpoff (1986) where disagreements between investors cause transactions. Li et al., (2014) show the impact of media (providing additional information) on investment decisions and stock returns. Kölbel et al., (2017); indicates a greater impact of bad news on the Company's financial risks. Sul et al., (2017) show that the impact of tweets (sentiment) can occur up to 10 days into the future. Based on this research, investors monitor news, analyze, follow, and make transactions.

The existence of real peers can: (i) influence investors, and in this case, behavioral bias occurs; (ii) the financial community has a relationship with the financial market, and (iii) investment decisions are made by copying (mirroring) other investors; (iv) can encourage informal interactions so as to encourage more subjective information; (v) influences the amount of allocation of funds invested (Heimer, 2016; Yang & Mo, 2016; Pelster & Gonzalez, 2016); Blankespoor, 2018; Bizzi & Labban, 2019). Glaser et al.,(2019) shows differences in information sources between professional (Bloomberg) and non-professional (Yahoo) groups. This will encourage professional groups to become 'leaders' and will then be more Overconfidence.

## 3. METHODOLOGY

The purpose of this research to examine whether overconfidence behavior is influenced by risk characteristics and social media. The control variables used are related to demographics, namely gender, education, and investment experience. Our research provides corroborating evidence regarding social media and overconfidence.

### 3.1. Data

Data was obtained through questionnaires from Indonesian capital market investors. Data was distributed from January 2024 to February 2024. One hundred and sixty-five (165) respondents were willing to answer completely

Operationalization Variables

| Variable | Explanation | Hypothesis |
|---|---|---|
| Over Confidence | equal weighted average of the 4 dimensions of overconfidence. Asked to respondents with an answer scale of 1-10 | |

| | | |
|---|---|---|
| Risk Character | → respondents were asked 3 questions referring to Bodie Kane Marcus; where the answers are on a scale of 1-3. If the respondent answers with a total score of 3 risk averter, 4-6 risk neutral, and 7-9 risk taker. Furthermore, just divide to be two category where 1=risk neutral/taker, and 0=other | Positive → risk taker investors are more likely to be overconfident |
| Sex | nominal data, where 0 is female | Positive → men are more overconfident |
| Education | the educational level of respondents with an increasing ordinal scale, (3 levels of education) | Positive → higher education is more overconfident |
| Generation | shows the level at which the respondent is, by asking for year of birth and dividing according to existing gene criteria (4 gene levels), the youngest gene (Z-Gene) is worth 1 | Positive The older generation is more overconfident |
| Strategy | shows the respondent's transaction method, with an ordinal scale where 0 indicates technical and 1 = fundamental | Positive: investment strategy is fundamentally more confident in its decisions |
| Social media | shows the impact of social media, through questions regarding investor participation in investment groups, as well as considering social media information in decision-making, (scale 1-10) | Positive more social media influence causes more overconfidence |

### 3.2. Non-Linear Relation

There is something that should happen, namely, the potential relationship between risk characteristics and social media. In a situation where social media is very dominant, there are multiplicative factors between the character of the risk (risk taker) and social media; where you will more likely to be overconfident. Apart from that, the onslaught of social media influence also encourages risk takers to be more overconfident. Based on previous research, although both variables were analyzed, no one has yet explicitly stated that there is an interrelation between these two variables. This is novelty in this research.

### 3.3. Model

The model was completed using the regression method. For non-linear relationships, two approaches are proposed as follows: (i) multiplicative factors between risk characteristics and social media; and (ii) the large impact of social media, interacting with investors with a risk lover character. This relationship is not linear. The model is as follows:

$$OC = \beta_{01} + \beta_{11}RC + \beta_{21}SC + \beta_{31}SX + \beta_{41}ST + \beta_{51}GN + \beta_{61}ED + \beta_{71}RC * SC + \varepsilon_1 \quad (1)$$

$$OC = \beta_{02} + \beta_{12}RC + \beta_{22}SC + \beta_{32}SX + \beta_{42}ST + \beta_{52}GN + \beta_{62}ED + \beta_{72}RC * SC^2 + \varepsilon_2 \quad (2)$$

Where:

OC = Overconfidence

RC = Risk Character

SC = Social Media

SX = Sex

ST = Strategy

GN = Generation

ED = Education

## 4. RESULT

In the results and discussion section, three sections are presented, namely: (i) descriptive statistics of selected variables; (ii) association of respondent variables, namely (i) gender and (ii) risk characteristics with various other demographic variables; (iii) regression analysis regarding the influence of risk character factors, social media on overconfidence. The results of the analysis are expected to provide important information regarding investor behavior in the Indonesian capital market

### 4.1. Descriptive Analysis

Descriptive analysis is provided for the overconfidence and social media variables, because the variables are on a ratio scale. Gender variable, investment strategy, and risk character are nominal scale and gene ordinal scale. For data on a ratio scale, the mean shows concentration, while for nominal (ordinal) data, the mean shows the percentage. The average overconfidence score is around 5.9 while social media is around 5.7 on a scale of 10. Thus, this average value is in the middle range (moderate); which shows that investors do not behave completely overconfidence and are not completely influenced by social media.

**Table 1.** Demographic Profile of Respondents

| Variables | Mean | Standard Deviation |
|---|---|---|
| Overconfidence | 5.9030 | 2.07750 |
| Sex | .6970 | .46097 |
| Strategy | .6909 | .46353 |
| Risk Character | .6485 | .52947 |
| Generation | 1.7818 | .69906 |
| Social Media | 5.7000 | 2.47906 |

### 4.2. The Association Among Sex, Risk Character and Other Fundamental Variables

The analysis results are given in table (2), table (3) and table (4). Table (2) shows the associations between sex and various other demographic factors. Around 70% of the respondents were men,

the remaining 30% were women. Of the four tests of the association between gender and education, genes, risk characteristics, and transaction strategies, it was found that $\chi^2$ was not significant. This shows that there is no association between gender and the variable in question. It is concluded that both men and women show equal preferences for the variables in question. Some results can be stated as follows: (i) the majority (more than 50%) of respondents had an education of 3; (ii) the majority of respondents are millennial generation (2) as much as 50%; and Z-generation (1) (36%); (3) most have neutral risk characteristics (62%); and (4) implementing trading transactions with fundamental strategies (69%). If you look at the risk characteristics of investors, most of them are risk-neutral while the transaction strategy is a fundamental strategy, this can be interpreted as a good thing. Thus, investors from Generation Z are quite careful in terms of investment, and this shows adequate responsibility in terms of investment

**Table 2.** The association among Sex and Various Investor Demography (%)

| Variable | Category | Sex (%) | | | $\chi^2$ |
|---|---|---|---|---|---|
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| Education | 1 | 4.8 | 7.3 | 12.1 | 2.292 |
| | 2 | 1.2 | 6.7 | 7.9 | (0.514) |
| | 3 | 15.2 | 35.8 | 50.9 | |
| | 4 | 9.1 | 20.0 | 29.1 | |
| | Sum (%) | 30.3 | 69.7 | 100 | |
| Generation | Category | Sex (%) | | | $\chi^2$ |
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| | 1 | 12.1 | 24.1 | 36.4 | 1.404 |
| | 2 | 13.3 | 37 | 50.3 | (0.705) |
| | 3 | 4.2 | 7.9 | 12.1 | |
| | 4 | 0.6 | 0.6 | 1.2 | |
| | Sum (%) | 30.3 | 69.7 | 100 | |
| Risk Character | Category | Sex (%) | | | $\chi^2$ |
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| | 0 | 10.9 | 24.2 | 35.2 | 0.023 |
| | 1 | 19.4 | 45.5 | 64.8 | (1.000) |
| | Sum (%) | 30.3 | 69.7 | 100 | |
| Strategy | Category | Sex (%) | | | $\chi^2$ |
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| | 0 | 7.3 | 23.6 | 30.9 | 1.605 |
| | 1 | 23 | 46.1 | 69.1 | (0.205) |
| | Sum (%) | 30.3 | 69.7 | 100 | |

Table (3) shows the association between risk characteristics and various other demographic factors. The majority of investors' risk characteristics are risk neutral/taker (69%) and risk averter (31%). Most apply fundamental strategies (69%). There is an association between risk characteristics and investment strategy, at $\alpha$=10%. There are also strong associations between genes and risk traits; where the majority are Z-gene (1) and millennial-gene (2) with risk averter and risk-neutral characteristics. However, there was no association between risk characteristics and education level. Overall, it can be concluded that the respondents are generations (1) and (2); has a neutral risk character and applies a fundamental investment strategy. These results can have implications for investment awareness in the younger generation. Thus, investment is not a common thing, so it is necessary to intensively introduce it to the younger generation as a new market. This introduction is also balanced with a fundamental understanding of investment, and

the need to teach risk-return in investment. In particular, (Asnawi, 2022) stated that several tips are needed for the younger generation in entering the stock market, namely: (i) start with a fundamental approach; (ii) investment principles, which are carried out slowly and continuously; (iii) seek additional information and (iv) need to refrain from showing off investment results.

**Tabel 3**. Association Investor Risk Character and Various Demography Variables (%)

| Variable | Category | Risk Character (%) | | | $\chi^2$ |
|---|---|---|---|---|---|
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| Strategy | 1 | 13.9 | 17.0 | 30.9 | 3.204 |
| | 2 | 21.2 | 47.9 | 69.1 | (0.080) |
| | Sum (%) | 35.2 | 64.8 | 100 | |
| Generation | Category | Risk Character | | | $\chi^2$ |
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| | 1 | 13.3 | 23 | 36.4 | 0.327 |
| | 2 | 17 | 33.3 | 50.3 | (0.955) |
| | 3 | 4.2 | 7.9 | 12.1 | |
| | 4 | 0.6 | 0.6 | 1.2 | |
| | Sum (%) | 35.2 | 64.8 | 100 | |
| Edu | Category | Risk Character | | | $\chi^2$ |
| | | 0 | 1 | Sum (%) | (Sign-2 tail) |
| | 1 | 5.5 | 6.7 | 12.1 | 1.249 |
| | 2 | 3.0 | 4.9 | 7.9 | (0.741) |
| | 3 | 17.6 | 33.3 | 50.9 | |
| | 4 | 9.1 | 20.0 | 29.1 | |
| | Sum (%) | 35.2 | 64.8 | 100 | |

## 5. DISCUSSION AND CONCLUSION

### 5.1. Regression Result Analysis

The factors that influence overconfidence can be followed in Tables (4) and (5). The results show the strategy and social media variable, which is significant, but the strategy coefficient contrary to the hypothesis. These results show that investors with a technical strategy are more overconfidences. Investors with a technical approach are closely related to the time dimension of investment, and risk characteristics. Fast and correct decisions are dominant in technical strategy so the placement of funds (overconfidence) will also accompany optimizing potential profits that may be obtained. This finding shows that fundamental investors are actually more careful, not having higher confidence. The social media variable influences overconfidence (at $\alpha$=10%) showing that investors who follow stock groups, and use that information for stock purchasing decisions, tend to be overconfident. The impact of these results needs to be paid attention to, so that group does not occur to abuse or lead opinions so that it can be detrimental to investors, especially uninformed investors. This is even more important, because technical strategies-investor tend to make short-term horizon, risky investment decisions and show them off as success. Investor show off this success, tend to follow social media. There are other variables, only the gender variable coefficient is in accordance with the hypothesis, while for the other variables (risk character, gene, edu), the coefficient sign is found to be the opposite; and all coefficients are not significant. It shows that there is not enough evidence that this variable has an influence on overconfidence behavior. These results indicate that overconfidence behavior

cannot necessarily be linked to demographic factors but is more influenced by investor interactions in their social environment. This finding can be a reference for the importance of structuring information; so that the information presented is more accurate, so that investment decisions become more rational. Cookson and Nielsen (2020) show that 58% of investors have technical and momentum, while the fundamental approach is around 12.51%. Glaser et.al (2019), show that the data source for non-professionals is Yahoo Groups. In this study, the largest number of respondents were Millennials and Gene Z. The findings align with the results of Cookson and Nielsen, as well as Glaser et al., reinforcing De Sousa et alz (2018) on the influence of Social Media and Information. (Asnawi et al., 2022) even wrote about rumor stocks (BRIS, ARTO) in Indonesia where is based on social media rumor.

**Table 4**. Regression Result Analysis, Factors Influence Overconfidence (Model 1)

| Variables | Predicted Sign | Coefficient | | t | sign | Other (Sign) |
|---|---|---|---|---|---|---|
| | | B | Beta | | | |
| (Constant) | | 5.950 | | 6.528 | .000 | F= 4.800 (.000) $R^2$ = 0.176 DW = 2.070 |
| Risk Character | + | -.005 | -.001 | -.006 | .995 | |
| Social Media | + | .185 | .221 | 1.788 | .076* | |
| Sex | + | .200 | .044 | .608 | .544 | |
| Strategy | + | -1.260 | -.281 | -3.669 | .000* | |
| Gen | + | -.176 | -.059 | -.729 | .467 | |
| Edu | + | -.103 | -.046 | -.561 | .575 | |
| RC*Socmed | + | .071 | .112 | .554 | .580 | |

Concerning non-linear factors, namely multiplicative risk characteristics and social media, a coefficient was found that was in accordance with the hypothesis, but not significant. It can happen, because the coefficient of the risk character is found not to match the hypothesis, so there is no multiplicative impact.

**Table 5.** Regression Result Analysis, Factors Influence overconfidence (Model 2)

| Variables | Predicted Sign | Coefficient | | t | sign | Other (Sign) |
|---|---|---|---|---|---|---|
| | | B | Beta | | | |
| (Constant) | | 6.022 | | 6.744 | .000 | F = 4.839 (.000) $R^2$ = .177 DW = 2.073 |
| Risk Character | + | .088 | .020 | .159 | .874 | |
| Social Media | + | .175 | .209 | 1.783 | .077 | |
| Sex | + | .198 | .044 | .603 | .548 | |
| Strategy | + | -1.269 | -.283 | -3.694 | .000 | |
| Gen | + | -.176 | -.059 | -.731 | .466 | |
| Edu | + | -.105 | -.047 | -.571 | .569 | |
| C*(Socmed)$^2$ | + | .008 | .107 | .730 | .467 | |

## 5.2. Robustness Test

Researchers conducted regression tests on model (1) and model (2) with the dependent variable being the dimension of overconfidence. There are four dimensions of overconfidence as dependent variables. Most of the results show no significance, both in model 1 and model 2. All social media coefficients are positive but not all significant. This means that there is a slight sign that investors who are active on social media will be more overconfident. This can be anticipated

to provide balanced information, so that this overconfidence bias can be reduced, or its consequences understood by investors. All strategy coefficients are negative (investors with a technical strategy are more overconfident) and most of them (75%) are significant except for the overconfidence dimension (over-placement). While placement (OC 1) is not significant, it is possible that this is hampered by the availability of investment funds as a determining factor in investor behavior bias. As is known, at different income levels, investors' relative risk aversion will be different. This can be a reference for further research, namely regarding the availability of funds. All coefficients for the Edu and Gen variables were found to be negative (not according to the hypothesis), but not significant. Thus, there is a slight sign that education is low and Z-Gene is more overconfident. Even though this has not yet been proven, it is necessary to anticipate so that this situation does not occur. There needs to be efforts to introduce financial literacy for these two groups, as explained in (Asnawi, 2022).

**Table 6.** Overconfidence Dimension-Regression (Model 1)

| Variables | Predicted Sign | Model 1, Dependen Variable: Overconfidence | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | OC 1 | | OC 2 | | OC 3 | | OC4 | |
| | | Koef | Sign | Koef | Sign | Koef | Sign | Koef | Sign |
| C | | 4.912 | .000 | 5.820 | .000 | 6.360 | .000 | 6.710 | .000 |
| Risk Character | + | .842 | .420 | 1.008 | .305 | -.434 | .688 | -1.437 | .171 |
| Social Media | + | .230 | .078 | .162 | .186 | .213 | .116 | .136 | .300 |
| Sex | + | .270 | .514 | .630 | .106 | .019 | .965 | -.119 | .775 |
| Strategy | + | -.293 | .497 | -.836 | .041 | -2.405 | .000 | -1.507 | .001 |
| Gen | + | -.043 | .888 | -.241 | .397 | -.193 | .539 | -.226 | .457 |
| Edu | + | -.074 | .747 | -.206 | .342 | -.069 | .772 | -.063 | .787 |
| RC*Socmed | + | -.052 | .749 | .000 | .997 | .065 | .699 | .272 | .095 |
| Other | $R^2$<br>F<br>DW | $R^2$ = 0.054<br>F=1.269 (0.151)<br>DW = 2.098 | | $R^2$= 0.115<br>F= 2.907 (0.002)<br>DW =2.088 | | $R^2$= 0.234<br>F=6.853 (0.000)<br>DW = 2.141 | | $R^2$=0.184<br>F=5.059 (0.000)<br>DW = 2.078 | |

Explanation

Overconfidence 1: I feel like I have more confidence, so I place more funds in a stock than I think I should (less diversification, for example when I should buy 1 lot of a stock, I actually buy more than 1 lot) (*overplacement*)

Overconfidence 2: I feel like I have more confidence, so I take risky decisions more boldly; (*overestimation*)

Over convidence 3: I feel I have more confidence, so I carry out trading activities (transactions/trading) more often; (*overprecision*)

Overconfidence 4: I feel I have more confidence, so I immediately act (sell/buy) on the various information you have; (*overreact*)

The coefficient for the gender variable is positive (75%; 6/8), according to the hypothesis, except for the overreaction dimension, where a negative coefficient is found. This means that women overreact more than men. It could be caused by women who are more emotional and thus behaving like this. These results are interesting if further research is to be carried out taking the theme of the emotional dimension of gender and investment decisions. Most of the coefficients for the risk character variable (75%) are positive but not significant. It shows that risk neutral (taker) investors tend to be overconfident, especially in the dimensions of over-placement and over-estimation. More placements and riskier decision making will provide a higher potential

profit (loss) and can indicate over-confidence. This needs to be paid attention to, remembering the initial investment philosophy, namely: implementing diversification.

**Table 7.** Overconfidence Dimension-Regression (Model 2)

| Variables | Predicted Sign | Model 1, Dependen Variable: Overconfidence | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | OC 1 | | OC 2 | | OC 3 | | OC4 | |
| | | Koef | Sign | Koef | Sign | Koef | Sign | Koef | Sign |
| C | | 5.459 | .000 | 6.051 | .000 | 6.034 | .000 | 6.544 | .000 |
| Risk Character | + | .239 | .732 | .802 | .223 | .001 | .999 | -.688 | .328 |
| Social Media | + | .148 | .233 | .127 | .274 | .262 | .042 | .164 | .187 |
| Sex | + | .282 | .494 | .634 | .104 | .010 | .982 | -.134 | .746 |
| Strategy | + | -.303 | .483 | -.842 | .039 | -2.403 | .000 | -1.528 | .001 |
| Gen | + | -.065 | .830 | -.250 | .380 | -.178 | .569 | -.210 | .490 |
| Edu | + | -.073 | .752 | -.206 | .342 | -.071 | .767 | -.069 | .765 |
| RC*Socmed² | + | .007 | .604 | .005 | .697 | -.001 | .934 | .021 | .131 |
| Other | $R^2$<br>F<br>DW | $R^2$ = 0.055<br>F = 1.294 (0.26)<br>DW = 2.111 | | $R^2$= 0.116<br>F=2.931 (0.007)<br>DW =2.096 | | $R^2$= 0.233<br>F=6.826 (0.000)<br>DW = 2.132 | | $R^2$=0.176<br>F=4.798 (0.000)<br>DW = 2.070 | |

### 5.3. Conclusion

This research concerns investor overconfidence bias. It was found that the average overconfidence was at 5.9 (scale 10), which indicates the value was at a neutral/moderate level. It was also found that the average influence of social media was also on a moderate scale. There is no association between: (i) the sex variable and various other demographic variables; (ii) risk character and various other demographic variables. Investors who utilize technical strategies often exhibit greater overconfidence than those who follow a fundamental approach. Another result is social media influence overconfident investors

Based on the results above: (i) regulators need to pay attention, to continue to provide an understanding of the importance of rationality in stock investment, because stock investment is classified as a high-risk investment. (ii) future research can focus on investment strategies with various investor behavioral biases. In the case of unobserved research variables, the questionnaire units can be considered with different weights (not equally weighted).

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