The Influence of Persuasion on Investor Decision-Making
An Analysis in Light of the Prospect Theory

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Abstract: The study aimed to analyse the impact of persuasion on students' decisions as non-professional investors in the context of the prospect theory. An experimental method involving 576 undergraduate students was used to conduct the research. The experiment manipulated two variables: persuasion and gain/loss, which are elements of the prospect theory. Persuasion was embedded in financial analyst reports, while gain/loss was reflected in the values of companies' shares and accounting information. The Binomial Test, supplemented by the McNemar test, was used to test the research hypotheses. The main findings of the research were: (i) investors were more likely to choose the company showing gains over the company showing losses; (ii) choices were more frequent for the company whose financial analyst report contained persuasive arguments than for the company without such arguments; (iii) persuasive arguments had a stronger influence than gains and losses when both variables were manipulated together. Therefore, the primary contribution of this work is to highlight that persuasive arguments from a technical authority, in this case the financial analyst, can mitigate the impacts of losses and gains presented in companies' financial reports.

Keywords: Persuasion; Investor's decision; Financial reports; Prospect theory.

1   Introduction

Individuals' financial decisions can be influenced by a number of psychological factors, which have only begun to be studied by economists since the 1970s (Lima, 2003). Thus, in a complex world with a wide variety of investment types, the individual's choice of investment can be related to several factors. As the literature attests, these factors can be explained by two theoretical perspectives: classical finance and behavioural finance (Sarwar & Afaf, 2016). According to classical economics, when individuals make decisions, they aim to use the greatest amount of available information to make the most rational choice possible. In the concept of behavioural economics, individuals cannot use all the information logically. So this perspective considers that the judgement of the investment decision carries emotional elements on the influence of cognitive aspects that differentiate the behaviour of these investors (Kahneman & Tversky, 1979).

In short, behavioural finance emerged from the interplay between finance and psychology. It recognises that individuals have limited rationality. In this perspective, the decision-maker is influenced by cognitive and emotional factors. The research of Kahneman and Tversky (1979), who presented the prospect theory, proved to be a relevant study for the field of Behavioural Finance. It showed that people behave differently in situations of profit and loss.

After this seminal study by Kahneman and Tversky (1979), other studies confirmed the same trend that investor behaviour is different when there are gains and losses (Silva et al., 2009; Vale, Costa Jr. & Cruz, 2020; Pereira, Silva & Tavares Jr., 2017). These studies confirmed that losses have a greater impact on individuals' decisions than gains.

In order to avoid losses, when making decisions, people look for information that can give them a sense of confidence (Du 2009). In this sense, individuals resort to different types of information. In the case of stock market investors, some of this information is available in the reports of financial analysts.

Financial analysts play one of the most important roles in the field of variable income investments (Rodrigues, Garcia, Ximenes & Moura, 2015). The reports produced by analysts are an element of information accessible to investors for decision-making and can contain persuasive arguments (DellaVigna, 2009; DellaVigna & Gentzkow, 2010). According to Winchel (2015), such professionals use persuasive arguments to gain greater investor confidence.

In this context, Henry and Peytcheva (2018) and Riley, Semin, and Yen (2014) state that the narrative of a text about a company's results and prospects can influence investors' decisions. Hofer and Oehler (2014) corroborate this statement by emphasising that investors can access and process information, and ultimately follow analysts' recommendations to make an investment decision.

Therefore, persuasion is a form of shortcut that can influence the investor's decision (Cialdini, 1984; Azmat, Ali & Brown, 2021). According to Kahneman (2012), even in complex

situations, individuals seek to reduce the time for reflection and try to decide faster by using these shortcuts when making choices.

However, it is still unknown whether persuasive arguments can influence investors' decisions, especially when investors are faced with win-lose situations. Against this background, the aim of this research is to analyse the impact of persuasion on students' decisions in the role of non-professional investors in the light of the prospect theory.

Behavioural finance is an area that needs more empirical studies to observe how investors behave in different situations (Silva et al., 2009). DellaVigna and Gentzkow (2010) point out that there are few studies that use a quantitative approach to verify the role of persuasion in investor decisions. Also, Fanning and Agloglia (2015) mention the need to verify the effect of persuasion on investor decisions in conjunction with other theories.

Numerous studies support the prospect theory (Silva et al., 2009; Vale et al., 2020; Pereira et al., 2017). It is well-known that persuasive arguments serve as shortcuts in investor decision-making. However, the impact of persuasion on investors' perception of loss remains unclear, particularly concerning the effects of gains and losses.

The literature on analysts' reports highlights the significance of the arguments used within these reports (Winchel, 2015). These arguments appear in nearly all analysts' reports, yet further investigation is needed to understand how they influence investors (Winchel, 2015).

The main finding of the study is the fact that the persuasive argument of a technical authority, in this case the financial analyst, proved to have a greater impact on investor decisions than the actual performance of the company. Therefore, it is recommended that investors, especially non-professionals, critically analyse all received information before making decisions.

2   Theoretical Framework

2.1 Prospect Theory

The prospect theory is linked to decision-making where individuals face uncertainty. It encompasses three characteristics. First, individuals tend to evaluate choices based on a reference point derived from prior knowledge or past experiences. Second, the individual's behaviour is not the same for gains and losses; they are typically risk-averse regarding gains but risk-seeking when facing potential losses. Third, the emotional impact of choices is significant; people experience greater distress from losses than pleasure from equivalent gains. Consequently, individuals are more likely to take risks to avoid losses, as the pain of losing is roughly twice as intense as the joy of winning (Kahneman & Tversky, 1979).

Following Kahneman and Tversky's seminal study, Thaler (1980) introduced additional aspects of decision-making involving losses and gains, identifying loss aversion

even in decisions made without risk. Thaler also found that individuals often neglect opportunity costs. In a similar vein, Novemsky and Kahneman (2005) demonstrated that experience influences risk-related decisions; experienced individuals are less affected by loss aversion than their less experienced counterparts.

This study employs the prospect theory to examine investors' aversion to losses and gains, focusing on their behaviour in such situations. Additionally, it considers the impact of persuasive arguments as a significant factor influencing investor decisions.

According to Du (2009), individuals react differently to information about gains and losses. Du et al. (2015) argue that positive information elicits positive judgments, while negative information results in negative judgments. Consequently, when a company reports poor results, investors are more inclined to trust positive suggestions (Du et al., 2015). Conversely, Kimura (2003) asserts that investors prefer to invest in companies that have reported gains and avoid those with reported losses. Therefore, the first research hypothesis is:

H_1: the number of investors who prefer companies that reported gains in the previous period will be greater than the number of investors who prefer companies that reported losses in the same period.

Du (2009) also notes that investors rely on available accounting information to assess potential gains and losses on investments. Complementing this view, Pace, Basso, and Silva (2003) emphasise the importance of non-financial information in investors' decision-making. According to these authors, the disclosure of good or bad news can significantly impact projections, particularly voluntary disclosures. The bad news is often accepted as true, prompting efforts to identify the underlying causes. In contrast, the good news is met with scepticism, leading managers to provide more detailed presentations (Pace et al., 2003).

Following the experiment conducted by Du, Stevens, and McEnroe (2015), which involved accounting students in the role of investors, this study also used gains and losses as independent variables. To conduct the analysis, the researchers recorded the number of selections for the company that reported a loss and the number of selections for the company that reported a gain, employing binomial analysis.

2.2 Persuasion

Persuasion is a communicative process aimed at securing the agreement of the message recipient. To ensure the effectiveness of this process, it must be meticulously planned from its inception, with arguments crafted to be convincing to the target audience (Shen, 2013).

DeFleur and Ball-Rokeach (1982) suggest that information provided by the sender can alter psychological behaviours such as needs, attitudes, and fears Thus, the desired behaviour is encouraged. Persuasion is effective only if the recipient agrees with the arguments and follows the recommendations presented (Winchel, 2015).

In the financial market, financial analyst reports often contain persuasive elements (Henry & Peytcheva, 2018). Typically, these reports include (i) recommendations on buying or selling shares, (ii) future expectations regarding share appreciation or depreciation, and (iii) long-term growth expectations for the company (DellaVigna & Gentzkow, 2010).

Persuasive messages impact professional and non-professional investors differently (Fanning & Agoglia, 2015; DellaVigna & Gentzkow, 2010). Fanning and Agoglia (2015) state that non-professional investors are particularly susceptible to optimistic recommendations, which may come from financial analysts or the companies' reports.

Non-professional investors are particularly likely to accept information with fewer arguments, especially if it aligns with their pre-existing beliefs. When investors, whether professional or non-professional, face significant uncertainty about a financial market decision, they are more receptive to persuasive messages (DellaVigna & Gentzkow, 2010). Messages from technical authorities on specific subjects are especially persuasive due to the perceived expertise of the authority (Shu & Cheng, 2012; Zhang et al., 2018; Schartzeins & Suderam, 2021).

For this study, the persuasive element of authority in financial analyst reports was chosen. Financial analysts are regarded as capital market specialists, which positions them as authoritative figures, thus earning investors' trust in their reports (Brauer & Wiersema, 2018; Radoc, 2018). Following the recommendations of technical authorities is generally advantageous (Cialdini, 1984).

Cialdini (1984) suggests that persuasion can be explained through elements that influence behaviour change. Previous studies (Shu & Cheng, 2012; Bickart, Morrin & Ratneshwar, 2015; Han et al., 2017) have used persuasion to examine behaviour change in decision-making. Therefore, it is pertinent to study the influence of authority on investors' decisions in the capital market. This leads to the following research hypothesis:

H_2: The number of investors who prefer companies that present persuasive arguments will be greater than the number of investors who prefer companies that do not present persuasive arguments.

According to DeFleur and Ball-Rokeach (1982), the information provided by the message sender can modify the psychological behaviours of recipients, such as their needs, attitudes, and fears, thereby promoting the desired behaviour. Persuasion is linked to psychological factors and must consider individual differences.

For Kahneman and Tversky (1979) investors' decisions do not happen rationally. They justify this statement with the Prospectus Theory, in which the individual is risk-averse for gain and prone to risk for losses. In this sense, the choices end up happening from a point of reference (Deccax & Campani, 2019). So the persuasive arguments coming from a financial market expert, particularly in this study represented by the financial analyst, when conveying the message in their reports, can influence the investor in his decision, because according to Henry and Peytcheva (2018), the arguments used by the analyst are able to

reduce the ability of investors to discriminate losses and gains. This leads to the third research hypothesis:

H₃: The number of investors who prefer companies that showed losses but included persuasive arguments in the financial analyst report will be greater than the number of investors who prefer companies that showed gains but lacked persuasive arguments in the analyst report.

A characteristic of the prospect theory is that individuals exhibit different behaviours for gains and losses, with losses having a greater impact than gains. Consequently, people are risk-averse concerning gains and risk-seeking concerning losses (Kahneman & Tversky, 1979).

3   Methodology Research

As this study sought to analyse the impact of persuasion on the decisions of non-professional investors, it is classified as correlational. According to Ramos and Naranjo (2014), correlational research partially explains the relationship between a variable and a certain phenomenon.

In terms of procedures, this research is characterised as experimental. The experiment allows the control of other variables known to affect the investor's decision (Riley et al., 2014). In this way, it is possible to isolate and analyse the variable of interest, which is an advantage that other methods cannot offer. The study adopts a quantitative approach to address the research problem.

The variables under investigation include the presence of persuasive arguments in financial analyst reports, the profit/loss status of shares in two companies, and investors' decisions regarding which company to invest in. The manipulation of the persuasive argument variable was qualitative, involving the presence or absence of persuasive elements (Cialdini, 1984).

The gain/loss variable is linked to the value of the share. The manipulation of the variable took place in two ways: the gain was characterised when the company presented an increase in the value of the share compared to the previous period; the loss was characterised when the share price decreased compared to the previous period (Silva et al., 2009).

For the design of the experiment, the internal and external validity recommendations recommended by Coutinho (2011) and Smith (2003) were adopted. The research instrument was based on the studies of Henry and Peytcheva (2018) and Winchel (2015). Thus, the experiment applied in this study was divided into three phases. In the first phase, the participants had to answer questions about their profiles. In the second, the individuals received the scenario containing the information for the investment decision. And in the third, some post-experiment questions were applied.

The design of the experiment was repeated measures. It was designed to meet the research objective, completing a 2 x 2 factorial. For this purpose, six scenarios were planned.

For each scenario, the participant had to make two decisions at two different points in time. At each point in time, there was information from two companies (called Alpha and Beta). The information provided was data extracted from accounting reports. It brought the share price, the company profit, and the equity value, in addition to the report issued by the financial analyst. Each individual participated in only one scenario.

Table 1 shows the manipulation of the variables distributed in six scenarios, and there were two moments for each scenario.

Table 1. Composition of the scenarios used in the experiment

Scenario	1º Moment	2º Moment	Company	Hypothesis
1	Loss; With Persuasion.	Gain; Without Persuasion.	Alpha	H_1
	Gain; With Persuasion.	Loss; With Persuasion.	Beta	
2	Loss; Without Persuasion.	Gain; Without Persuasion	Alpha	H_1
	Gain; Without Persuasion	Loss; With Persuasion.	Beta	
3	Loss; Without Persuasion.	Loss; With Persuasion.	Alpha	H_2
	Loss; With Persuasion.	Loss; Without Persuasion.	Beta	
4	Gain; Without Persuasion	Gain; With Persuasion.	Alpha	H_2
	Gain; With Persuasion.	Gain; Without Persuasion	Beta	
5	Gain; Without Persuasion	Loss; Without Persuasion.	Alpha	H_3
	Loss; With Persuasion	Gain; Without Persuasion	Beta	
6	Loss; Without Persuasion	Gain; Without Persuasion	Alpha	H_3
	Gain; With Persuasion	Loss; Without Persuasion	Beta	

Source: Elaborated by the authors (2023).

Before the experiment was administered to the participants, it was submitted to and approved by the Human Research Ethics Committee. Additionally, a pre-test phase was conducted to ensure that the manipulation of variables produced the intended effects (Smith, 2003). This pre-test involved 45 participants and aimed to identify and address any inconsistencies that arose during the experiment, leading to adjustments in the research instrument.

The sampling method employed was non-probabilistic and based on accessibility. Students in their final two years of undergraduate accounting, business management, and economics programs were recruited for the study. According to Smith (2003), using students in financial research does not differ significantly from using experienced individuals.

The research included a total of 576 students from seven higher education institutions in southern Brazilian states (Paraná and Santa Catarina), comprising four private and three public universities.

Data analysis involved descriptive statistics to examine response frequencies and to characterise participants based on factors such as gender, age, educational institution, income, and financial knowledge.

Therefore, considering the research problem and the experimental design, hypothesis testing was conducted. Hypothesis testing is a procedure for determining whether to accept or reject a specific hypothesis (Fávero & Belfiore, 2017). These tests are categorised into parametric and non-parametric methods. In order to define the appropriate test, assessments of the normal distribution and the homoscedasticity of the residuals have been carried out. The Kolmogorov-Smirnov Test indicated that the data did not exhibit normal distribution or homogeneity of residuals. Consequently, non-parametric tests were employed, specifically the Binomial and McNemar tests, for evaluating all hypotheses.

4   Results and Discussions

Of the total participants in the experiment, 57% identified as male. This data aligns with findings from another study on financial decision-making by Shu and Cheng (2012), where the majority of participants were also male. Regarding age, the sample predominantly consisted of younger individuals, with ages ranging from 19 to 55 years old. When dividing the investors into age groups, the group between 21 and 25 years old was the most representative, comprising 53% of the sample. Similarly to the study carried out by Zhang et al. (2018), this age group also had the highest percentage of respondents at 60.2%.

In terms of family income, most participants (53%) reported an income between two and five times the minimum wage. Regarding participants' self-assessment of their financial knowledge, 86% of participants rated themselves as having a reasonable understanding of various financial investments. Additionally, 75% of participants indicated that they had made some type of financial investment, with the vast majority (94%) investing in fixed-

income instruments such as savings accounts. This classification helps provide a clearer understanding of the sample's demographics.

Three hypotheses were tested to examine the influence of persuasion on investors' choices in light of the prospect theory. For the first hypothesis, scenarios 1 and 2 were utilised, each comprising two phases.

In the first phase of scenario 1, only the gain/loss variable was manipulated while the persuasion variable was controlled. Participants were presented with two company options: one company (Beta) showed gains in share value and accounting data compared to the previous period, while the other company (Alfa) showed losses. Both companies' reports included persuasive arguments from financial analysts.

In scenario 2, similar to scenario 1, only the gain/loss variable was manipulated, and the persuasion variable was controlled. One company reported gains compared to the previous period, and the other reported losses. However, unlike the first scenario, neither company's analyst reports contained persuasive arguments. Table 2 presents the results of the Binomial Test for both scenarios.

Table 2. Investor decisions with the gain/loss variable

Scenario 1			Scenario 2		
Variable	Number of participants	p-value	Variable	Number of participants	p-value
Gain x Without Persuasion	73	0.0000	Gain x With Persuasion	81	0.0000
Loss x Without Persuasion	23		Loss x With Persuasion	15	
Total	96		Total	96	

Source: Elaborated by the authors.

Upon reviewing Table 2, it is evident that the majority of investors, in both scenarios, chose the company that demonstrated gains over the company that exhibited losses. These findings are consistent with the study by Du et al. (2015), which indicates that investors prefer to invest in companies that have achieved gains.

The Binomial Test results, based on participants' choices, yielded a p-value of 0.0000 for both scenarios. Consequently, the test confirmed the expected investor decisions, leading to the acceptance of H_1. This indicates that companies reporting gains were more attractive to participants than those reporting losses. Similarly, studies by Du (2009) and Kimura (2003) found that participants preferred companies with gains over those with losses in the previous period.

Figure 1 illustrates the percentage distribution of participants' choices. It further highlights that in scenario 1, where neither company presented persuasive arguments, the majority chose the company that reported gains. In scenario 2, where both companies showed gains, the preferences remained for the company with gains. This observation suggests that, in the absence of persuasive arguments, participants favoured the company with a reported gain.
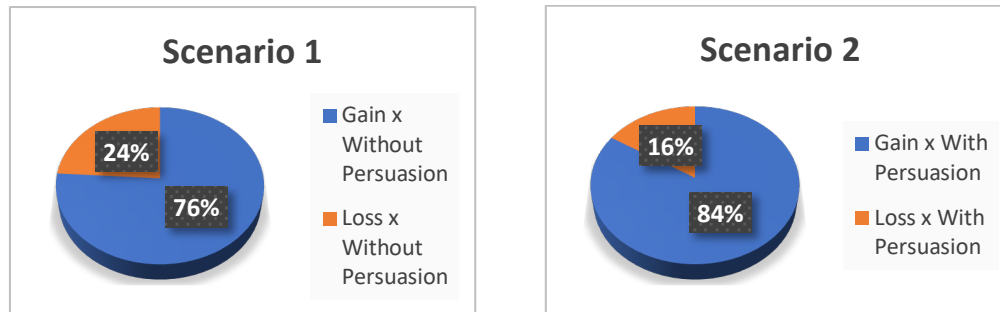

Figure 1. Percentage of choices for scenarios 1 and 2.
Source: Elaborated by the authors.

These results align with the assumptions of Kahneman and Tversky's (1979) prospect theory, which posits that individuals tend to avoid risk to prevent immediate loss, thus opting for companies with better past performance. Participants used previous gains as a reference point to minimise risk and maximise potential gains.

In test H_1, in which the Binomial Test was used, the same participants had to make one more investment decision immediately after the first choice. This subsequent decision was analysed using the McNemar Test.

In the second phase of scenarios 1 and 2, the gain/loss variable was reversed: the company that initially reported a gain now reported a loss, and vice versa. According to the prospect theory (Kahneman & Tversky, 1979), it was hypothesised that participants who initially chose the gain company would switch their investments, while those who chose the loss company would retain their investments, aiming to recover their invested funds. Table 3 presents the McNemar Test results for the participants' second decision.

Table 3 reveals that the McNemar Test result for scenario 1 from the first to the second phase was 0.0060, which is below the 5% threshold. This indicates, with 95% confidence, that there was a significant change in investors' choices between the first and second phases, where the gain/loss variable was manipulated. The manipulation significantly impacted investors' decisions, aligning with the prospect theory (Kahneman & Tversky, 1979). Specifically, investors exhibited loss aversion: those who gained from investing sought to divest, while those who experienced losses chose to retain their stocks to mitigate initial losses.

Table 3. McNemar test for decisions with the gain/loss variable

Scenario 1					Scenario 2				
Before & After			Test Statistics		Before & After			Test Statistics	
		After	N.	96			After	N.	96
Before	Beta	Alpha	McNemar's chi2 (1)	7.54	Before	Beta	Alpha	McNemar's chi2 (1)	15.38
Beta	53	20	Prob > chi2	0.0060	Beta	558	223	Prob > chi2	0.001
Alpha	6	17	Exact.Sig	0.0094	Alpha	03	112	Exact.Sig	0.001

Source: Elaborated by the authors (2023).

Similarly, in scenario 2, the McNemar Test result was 0.0001, reinforcing that there were significant changes in investor choices between the two phases when only the gain/loss variable was manipulated, also with 95% confidence.

The second hypothesis tested in the study pertains to the influence of persuasion, analysed during the first phases of scenarios 3 and 4. Here, only the persuasion variable was manipulated to assess its impact on investor decisions.

In scenario 3, the company Alpha did not receive persuasive arguments, whereas company Beta did, as reflected in the financial analyst report. The gain/loss variable was not manipulated, and both companies reported losses from the previous period.

In scenario 4, the setup was similar to scenario 3, with only the persuasion variable manipulated: company Beta received persuasive arguments, and company Alpha did not. However, unlike scenario 3, both companies in scenario 4 reported gains from the previous period. Table 4 presents the results of investor choices for scenarios 3 and 4.

Table 4. Investor decisions with the persuasion variable

Scenario 3			Scenario 4		
Variable	Number of participants	p-value	Variable	Number of participants	p-value
Loss x With Persuasion	60	0.0184	Gain x With Persuasion	59	0.0315
Loss x Without Persuasion	36		Gain x Without Persuasion	37	
Total	96		Total	96	

Source: Elaborated by the authors (2023).

The data presented in Table 4 show that 62.5% of participants in scenario 3 and 61.5% in scenario 4 made the expected decision, opting for the investment whose analyst report contained persuasive arguments. This result supports Shen's (2013) assertion that persuasion is a communicative activity capable of influencing individual decisions.

To analyse H_2, the Binomial Test was performed. Table 4 shows the calculations for both scenarios regarding the manipulation of the persuasion variable. According to the test results, with a 95% confidence level, H_2 cannot be rejected for the persuasive argument variable in scenario 3 (p=0.0184) and scenario 4 (p=0.0315). This indicates that investor choices are more favourable for companies that present persuasive arguments in their reports.

These findings corroborate Shu and Cheng's (2012) conclusion that elements of authority are crucial for decision-making. Also, they reinforce Fanning and Agoglia's (2015) observation that non-professional investors readily accept financial analysts' recommendations.

For the analysis of the persuasion variable, a second decision phase was included in each scenario, termed the second moment. Thus, for scenarios 3 and 4, the presentation of the persuasion variable was inverted in the second moment.

In the second moment of scenario 3, the persuasion variable was manipulated, but with the following inversion: the company that received the persuasive element in the first moment did not receive it in the second moment. The gain/loss variable was not manipulated at this time, so both companies continued to show losses.

The design of the second moment of scenario 4 was similar to that of scenario 3. The persuasion variable was manipulated and inverted, while the gain/loss variable was not altered. To complement this analysis, the McNemar Test was conducted to determine if there were significant changes in decisions between the first and second moments. Table 5 presents the test results.

Table 5. McNemar test for decisions with the persuasion variable

Scenario 3					Scenario 4				
Before & After			Test Statistics		Before & After			Test Statistics	
	After		N.	96		After		N.	96
Before	Beta	Alpha	McNemar's chi2 (1)	16.90	Before	Beta	Alpha	McNemar's chi2 (1)	4.83
Beta	30	33	Prob > chi2	0.0000	Beta	37	24	Prob > chi2	0.028
Alpha	7	26	Exact.Sig	0.0000	Alpha	11	24	Exact.Sig	0.041

Source: Elaborated by the authors (2023).

Table 5 shows that the McNemar Test for scenarios 3 and 4 presented p-values of 0.0000 and 0.0280, respectively, both below the 5% threshold. This allows us to conclude, with 95% confidence, that there was a significant change in investors' choices between the first and second moments. In these scenarios, only the persuasion variable was manipulated, demonstrating its impact on investors' decisions.

For testing H_3, two scenarios (5 and 6) were used in which participants chose between investing in two companies (Alpha and Beta). Investors made their decisions after reviewing financial information from accounting data, share value, and excerpts from analyst reports for both companies. In these scenarios, both variables (persuasion and gain/loss) were manipulated together. Table 6 presents the results of the Binomial Test for investors' choices in these scenarios.

Table 6. Decisions involving the persuasion and gains/losses variables

Scenario 5			Scenario 6		
Variable	Number of participants	p-value	Variable	Number of participants	p-value
Gain x Without Persuasion	37	0.0315	Gain x With Persuasion	79	0.000
Loss x With Persuasion	59		Loss x Without Persuasion	17	
Total	96		Total	96	

Source: Elaborated by the authors (2023).

In scenario 5, most investors preferred the company whose report contained persuasive arguments from the financial analyst despite the company's loss in the previous period. This indicates that the persuasive argument from the financial analyst overcame the loss aversion observed in the first scenario. This result aligns with Cialdini's (1984) assertion that technical authorities, such as financial analysts with high levels of knowledge, can significantly impact people's decisions. It also corroborates Hales, Kuang, and Venkataraman's (2011) finding that negative news is mitigated by the persuasive arguments of financial analysts.

In scenario 6, one company (Beta) presented persuasive arguments and showed a gain in share value, while the other company (Alpha) lacked persuasive arguments and showed a loss. Investors' decisions in this scenario mirrored those in scenarios 1 and 3, with most investors preferring companies with gains and persuasive arguments. This result supports Wood's (2020) research, confirming that arguments indicating gains are more convincing for investors.

To test H$_3$, the Binomial Test was carried out, and the result showed that the investors' decision was as expected for H$_3$, i.e. not to reject the hypothesis, since the overall p-value for the proposed scenario was =0.0315. Thus, the company that presented a loss in the previous period but which presented persuasive arguments in its analyst reports, proved to be more attractive to investors than the company that had shown a gain in the previous period but had not included persuasive arguments in its reports. This result reinforces Henry and Peytcheva's (2018) assertion that persuasion is able to reduce investors' ability to discriminate between better and worse company performance.

Additionally, gender-based analysis of investors' decisions revealed that females had a higher average percentage (67.57%) of choosing the company with persuasive elements and losses, compared to males (58.84%). This suggests that the financial analyst arguments provided a sense of security that mitigated loss perception, confirming the findings of Silva et al. (2009) and Haubert et al. (2012) that females are more loss-averse.

For scenarios 5 and 6, participants made a second investment decision. In these moments, both the persuasion and gain/loss variables were manipulated. Specifically, in the second moment of scenario 5, a new decision option presented one company with a loss and another with a gain, with neither report containing persuasive arguments.

In the second moment of scenario 6, all variables were inverted from the first moment. Thus, Alpha presented a gain and persuasive arguments, while Beta showed a loss and no persuasive arguments. The McNemar Test was conducted to analyse these moments, and Table 7 presents the test results.

Table 7. McNemar test for the gain/loss and persuasion variables

Scenario 5				Scenario 6			
Before & After		Test Statistics		Before & After		Test Statistics	
	After	N.	96		After	N.	96
Before	Beta Alpha	McNemar's chi2 (1)	2.63	Before	Beta Alpha	McNemar's chi2 (1)	45.08
Beta	36 14	Prob > chi2	0.1048	Beta	31 48	Prob > chi2	0.000
Alpha	24 22	Exact.Sig	0.1433	Alpha	1 16	Exact.Sig	0.000

Source: Elaborated by the authors (2023).

The second moment of scenario 5 showed a McNemar Test result of 0.1048, above the 5% threshold, indicating no significant change in investor choices between the first and second moments. This suggests that investors remained confident in the financial analyst's opinion from the first moment. Also, in the absence of persuasive arguments in the second moment, decisions did not significantly change. This finding aligns with DellaVigna and

Gentzkow's (2010) research, suggesting that persuasive messages from technical authorities can influence investors in times of uncertainty.

In the second moment of scenario 6, the McNemar Test result was 0.0000, which indicated significant changes in investors' choices with 95% confidence. Both variables (gains/losses and persuasion) were manipulated, supporting Henry and Peytcheva's (2018) research, which claims that expert arguments can reduce investors' ability to distinguish between gains and losses.

The analysis of the experiment's results points to what was stated by Kahneman (2012), that decisions can be made by triggers. This study found that persuasive arguments can serve as such triggers. Specifically, the authority of the financial analyst acted as a trigger, aligning with Cialdini's (1984) claim that authority can shape, reinforce, or change opinions. The results showed that the persuasive argument prevented the individual from carrying out a more detailed analysis of the information and started to believe only in the experience of an expert, thus generating a shortcut in the investment decision-making process. Consequently, as Chaiken (1980) observed, the source of the message had a greater impact than the data on which the message was based.

5   Conclusions

The aim of this study was to analyse the impact of persuasion on students' decisions in the role of non-professional investors in the light of the prospect theory. To achieve this objective, a repeated measures design experiment was carried out. The study involved 576 students from the last two years of Business Management, Accounting, and Economics programs at seven universities in southern Brazil.

The literature (Silva et al., 2009; Vale, Costa Jr., Cruz, 2020; Pereira, Silva, Tavares Jr., 2017; Kahneman & Tversky, 1979) indicates that losses influence individual decisions, and persuasion acts as a shortcut in decision-making (Henry & Peytcheva, 2018). However, it is not known what effect persuasion has on investors' decisions in situations where the company presents profits and losses compared to previous periods.

Therefore, through an experiment, three hypotheses were tested. The first of which verified whether investors, when making an investment, prefer companies that showed profits or losses in the previous period. The results showed that the participants preferred the company that had profits more than the company that had losses. This preference is due to the fact that the individual tries to reduce the chances of losses when making investments, which is consistent with the prospect theory (Kahneman & Tversky, 1979).

The second hypothesis analysed the persuasion variable. The results showed that the majority of investors chose the company that had presented persuasive arguments in the financial analyst report rather than the company with no persuasive argument. Thus,

corroborating Cialdini's (1984) view that persuasive arguments can be a shortcut to decision-making.

The third hypothesis analysed both variables (persuasion and gains/losses). Results indicated that persuasion mitigated losses and significantly influenced investor decisions. Persuasive arguments combined with gains reinforced positive perceptions and reduced loss aversion. Additionally, persuasive arguments combined with profit were even more powerful, in the sense that the persuasive argument reinforced the company's previous profit, thus reducing the perception of loss.

The study contributes to the literature by addressing the research gap identified by Winchel (2015) on the effects of persuasion on investor decisions involving company losses and gains. It provides empirical evidence that persuasive arguments from technical authorities (e.g., financial analysts) significantly influence non-professional investors, regardless of company performance. The findings align with DellaVigna and Gentzkow (2010) and Fanning and Agoglia (2015), emphasising the persuasive element's ability to shortcut investor decisions.

The research contributed to the literature on persuasive arguments in the financial market. A study by DellaVigna and Gentzkow (2010) and Fanning and Agloglia (2015) pointed out that there are few studies on this topic. Therefore, this paper provides empirical evidence that the persuasive element of authority is capable of shortcutting the investor's decision. It also contributes to the prospect theory by analysing the behaviour of non-professional investors in situations involving gains and losses, using persuasive arguments and their impact on these situations as a dialogue variable.

Additionally, it enhances the literature on behavioural finance. This area seeks to identify the elements that impact investor decision-making. Previous studies (Duclos, 2015; Riaz & Hunjra, 2015) indicate that investor decisions in uncertain situations are influenced by cognitive factors and that people tend to simplify the decision-making process through stimuli. However, it is not clear what these stimuli are. What this study was able to show was that the persuasive element acted as a trigger for faster thinking during investment decision-making.

Regarding the limitations of the research, despite adhering to internal and external validation elements of the experiment, as proposed by Smith (2003) and Coutinho (2011), the experimental model limited investor choice to two companies, whereas the capital market offers more options. However, this limitation does not invalidate the results, as side-by-side company comparisons are common in experimental research on investor decisions (Henry & Peytcheva, 2018; Winchel, 2015).

As a suggestion for future research, we propose analysing the impact of persuasive arguments from technical authorities on other samples, such as professional investors or those with more experience in the capital market. This study focused on inexperienced

investors with limited financial market knowledge, so examining more seasoned investors could provide additional insights.

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