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Biases in managerial decision making: Regret aversion, endowment, confirmation, self-control, recency

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Abstract
During the realization of business activities, managers have to make many decisions. Some of these are the routine decisions they make every day, while others are more complex and have great effects. Although managers think that they make decisions that are complex and have great effects rationally, the reality is the opposite. Complex decisions take based on emotion, both due to the large number of variables in such decisions and the lack of information about the possible consequences. At the same time, the analytical decision-making process requires full knowledge and analytical ability, and most of the managers do not have time to analyze and so use various shortcuts when making decisions. However, the use of these shortcuts can cause biases. The use of shortcuts can be beneficial when awareness of managers about these biases is raised. In this study, regret aversion, endowment, confirmation, self-control and recency biases among the biases in the literature were examined theoretically and empirically, and it was aimed to discuss their effects on managerial decisions. It was observed that raising awareness of these biases has various benefits for managers. In addition, managers are normal people with emotions and intelligence like everyone else and cannot always be expected to make rational decisions. It was also revealed that, thanks to the awareness of biases, managers will develop more competent decision-making skills in which they use both their mental and emotional skills together.

Keywords: decision making, bias, regret aversion, endowment, confirmation, self-control, recency

Introduction
Kahneman (2013) [25, 26] mentions two systems that are effective in decision-making: System 1 and System 2. System 2 is conscious, cognitive, analytical, and rule-based, but it works slowly and requires intense effort to work. System 1 is fast and automated and works with low effort (Kahneman, 2013) [25, 26]. Most of the time it comes into play unconsciously. Its speed also stems from here. The success of System 1 increases as experience increases. System 2 is forced in situations that are complex and encountered for the first time because it cannot provide information and analyze. In contrast, System 1 helps the judgement with feelings and intuition, supported by experience. System 2 is successful in familiar, simple and regular cases. It creates judgment slowly and analytically.
Barrett (2017) states that the foundations of Kahneman's system 1 and system 2 approach are based on Freud's id, ego and superego, while Freud's approach is based on Plato's essences of the mind. Therefore, decision making is an action taking place in the mind. Although classical emotion theory states that certain regions of the brain have fixed psychological functions, constructed emotion theory states that there is not one single brain region that is separate from emotion (Barrett, 2017). Similarly, Kahneman (2013) [25, 26] states that there are no special places in the brain for systems 1 and 2. Again, as a parallel of these approaches, Thaller and Sunstein (2008) [50] name these two systems as an automatic system and reflective system and state that humans have two semi-autonomous selves as planner and doer. Whatever these systems are called, they shed light on the working structure of the mind and human decision-making.
Managers have to make many decisions during the realization of business activities. Although almost all claim to have made analytical decisions, their decisions are actually more effective. Analytical decision-making requires full knowledge and analysis capability. It is also time consuming. But Thaler and Sunstein (2008) [50] state that people are often busy and lazy, do not have time to think and analyze and use various shortcuts for this. Shortcuts are fast, practical and sometimes useful. But they can cause systematic errors (bias). The benefit or harm of using shortcuts depends on the cognitive and affective abilities of the decision maker, as well as their knowledge, experience and age. It is stated that the legendary CEO of General Electric, Jack Welch, said: *"I have never looked at the numbers presented to me, I looked at the person who presented to me and made my decision."* It is not possible to say that such a decision is rational. However, it appears that it is not at fault. Of course, it is dreaminess to expect Jack Welch performance from every manager who will decide in this way. In contrast, many managers are overwhelmed by a lot of information in making rational decisions hence even making very simple decisions incorrectly. The main feature underlying this is whether the situations encountered are predictable and meet certain conditions. Kahneman (2013) [25, 26] states that individuals make decisions with their intuition in situations that are predictable and meet certain conditions. For the development of intuition, again, two features are required: The decision problem is predictable and a lot of practice has been done and learned before (Kahneman, 2013) [25, 26]. The medical field offers numerous

examples of this. Multiple doctors looking at the same tests and x-ray films make different diagnoses and recommend different treatments, whereas the information they use is common, and the criteria for evaluating it are largely universal. In addition, there are doctors who combine very limited analysis with intuition and make a fast and accurate diagnosis. Especially those who work in emergency departments often do not even have time for test and x-ray film. They have to take action by relying on their intuition. Then the criterion of the right decision is neither a decision based on only information nor a decision based on emotion. It is the other personal characteristics of the decision maker that determine which one will be right when.

The level of knowledge is important. As people are more knowledgeable, they will be more successful in distinguishing information and noise. Silver (2016) defines noise as things that drive people away. Kahneman (2013) [25, 26] states that we have limited knowledge about the situations that we encounter in daily life and system 1 is successful in generating causality from information particles. Similarly, Silver (2016) states that people are adept at finding patterns in noise. For this reason, while we want to have the knowledge, we run after information (Silver 2016). However, not only the level of knowledge is sufficient, but also life experiences and experiences are also important. Experiences and life experiences are different concepts. Life experiencing is associated with events that have happened before. Experience is lessons learned from life experiences. The important thing is to evaluate the events objectively after they happen and to determine the mistakes and the right points. In this way, the experience is gained by deriving the necessary lessons from the events. However, this is not an easy process. It is painful to accept and confess the mistakes made. But, studies show that mistakes that are not confessed have a weak effect on learning. For this reason, the experience is important and should not be associated only with seniority.

Business life requires making many decisions under uncertainty. However, most of the time there is not enough time and information to make decisions. This causes high stress. Although the state of tension experienced sometimes helps focus, stress that goes above a certain level also disrupts cognitive abilities. At this point, as mentioned above, the biggest assistant of the managers is heuristics and shortcuts (Nofsinger and Varma, 2013) [35]. In this chapter, regret aversion, endowment, confirmation, self-control and recency effect will be evaluated from biases that managers apply from time to time. The last section is discussion and implications. In this chapter, as in the previous chapter, the psychological bases of the related biases will be mentioned. This approach is very valuable. Generally, economy and business studies use biases but do not emphasize their psychological infrastructure (Aren, 2019a, 2019b) [2, 3]. Although this approach allows associating biases with some variables, it can cause conceptual gaps in readers because the origin of biases is not discussed enough (Aren, 2019a, 2019b) [2, 3]. Here, we tried to both eliminate this deficiency and handle the work done on the relevant biases by associating with the business and economy area. For this reason, the relatively less studied biases emphasized in Aren (2019a) [2] and Aren (2019b) [3] studies were especially evaluated. The benefit of this chapter is that it gives managers and prospective managers more general information and awareness about all these biases they use.

Although we want it, we cannot be protected from all biases. Because the process that leads to bias is not completely conscious. It often works unconsciously. The important thing is to be aware of them and to know their impact on our decisions.

Regret aversion

Regret is the feeling that the person experiences when he/she chooses between different alternatives and then realizes that his/her preference is not the best (Aren, 2019b) [3]. In order to experience this feeling, it is necessary to be informed about the result of the alternative that has not been chosen (Zeelenberg *et al*., 1996; Wong, 2014) [53, 52]. For this reason, feedback is critical in regret aversion bias (Zeelenberg *et al*., 1996) [53]. Regret is a painful feeling and feedback is the main reason for this pain. Therefore, sometimes people can even sacrifice some of their returns (about 10%) to avoid negative feedback (Zeelenberg *et al*., 1996) [53].

Connolly and Zeelenberg (2002) [14, 23] mention outcomes and anticipated regrets (self-blame regret). Outcomes regret feels after the decision and it is a type of regret created by the erroneous choice (Inman and Zeelenberg, 2002) [14, 23]. For this, the results of the alternatives that are not chosen should also need to be known. It is a regret that can be experienced frequently for managers. It is not possible for every decision made to be correct. However, if the results of erroneous decisions are big in terms of company, the pain experienced in the context of individual and company will be great. When the company loses money, the prestige and self-esteem of the manager are also damaged. One of the safe ways to avoid this situation is the status quo. Status quo is an alternative that has been tried in the past and its positive and negative aspects have been learned. This choice may not be the most ideal, but it is the safest one. A different choice involves possible gain and loss. Unused earning opportunities are painful, but the severity of pain is low. In contrast, the realized loss is real and quite painful. This difference in feeling pain leads managers to status quo behavior on behalf of regret aversion. Anticipated regret originates from a weak or inadequate decision making process (Aren, 2019b) [3]. This type of regret aversion causes better decisions (Connolly and Reb, 2012) [13]. There is no need to wait for the result of the decision or provide feedback in order to experience anticipated regret. For this reason, managers who want to avoid regret tend to make a more detailed analysis and the quality of the decision increases. In anticipated regret, the source of regret is predominantly the inadequacy and deficiency of the decision maker. It is sufficient for the manager to be aware of his/her personal situation or the mistakes s/he has made during the decision process in order to experience this regret. However, when the result is not as feared, regret ends. As a result of this feature, it causes the tension that managers mostly live in their inner worlds and try not to reflect on the outside. In addition, another important factor affecting the regret level is also a responsibility. If the manager does not feel responsible for the decision making process, s/he will not experience this regret. The manager, who does not take the responsibility of a decision process operated with the decision of the board of directors, does not feel any pain due to regret. Similarly, the regret of the only alternative that the manager or firm can choose is not high.

When the outcomes and anticipated regret are evaluated together, it has been seen that the decisions affect the regret and vice versa. Hence, it can be mentioned that there is a two-way interaction between them. It causes regret that the decision of the individual does not give the desired result or that it performs lower than the alternative that is not chosen. The regret experienced is also effective in the next decision. The decision to be made after regret leads to the choice of two different behavior choices: action or inaction. The regret due to the erroneous taken action decision within the framework of the regret aversion bias is expressed as the commission regret, and the regret caused by the wrong inaction selection is expressed as the omission regret. Aren (2019b) [3] defines commission regret as the individual taking action by making a decision and not being able to achieve the expected result while defining omission regret as the pain caused by to miss out possible gains due to the decision not to act. Seiler *et al*. (2008) [44] state that commission regret will be larger than omission regret because commission regret is caused by real loss and omission regret is deprived of possible return.

When it is also evaluated in terms of business life, greater regret originates from erroneous action. To managers, the inaccuracy of continuing what has been done for a long time is less painful than the erroneous results of the different methods tried. New trials disquieted many people as cause changing accustomed things. When the desired result is not achieved, the decision maker of the action is held responsible for the influence of unhappy people. In contrast, the choice of inaction (status quo) is safer. As long as the gains to be taken by action are not obviously higher than the gains made due to inaction, the level of being held responsible and the pain to experience will be lower. But this situation creates a big obstacle for entrepreneurship and innovation. For this reason, the status quo will dominate throughout the firm unless the practices that reduce action regret and increase inaction regret are put into use by the top management of the company. Connolly and Reb (2012) [13] state that omission regret inflicts pain more in people with real entrepreneurial characteristics. Similarly, Kahneman and Riepe (1998) [24] emphasize that the omission regret is higher than the commission regret for investors.

As a result, regret aversion has an impact on managerial decisions (Coricelli *et al*., 2005) [15]. It causes low debt usage (Adeneye *et al*., 2020) [1], and efficiency (Broll *et al*., 2017) [9]. It increases the tendency to take out insurance (Korn and Rieger, 2019) [29]. However, the findings regarding the relationship with risk seeking are different. While some studies point out that regret aversion will cause risk avoidance (Guo *et al*., 2015) [21], some studies emphasize that it will lead to risk taking (Zeelenberg *et al*., 1996; Seiler *et al*., 2008) [53, 44]. Regarding this difference, Zeelenberg *et al*. (1996) [53] state that individuals tend to avoid risk when they expect to receive feedback about the safe option, and when they expect to receive feedback about the risky option, they will turn to the risky option.

Endowment

Endowment bias is the difference between the price that individuals request to sell the asset and the price they offer to buy. Many studies point out that the price people want to give up their assets is higher than the price they agree to pay to buy the same assets (Rick, 2011; Greenstein and Xu, 2015) [40, 19]. In general, the existence of two effects causing this bias are accepted: Loss aversion and ownership (Rick, 2011; Kleber *et al*., 2013; Ericson and Fuster, 2014; Greenstein and Xu, 2015) [40, 27, 17, 19].

Loss aversion is one of the well-known behaviors that is also the basis of prospect theory (Kahneman and Tversky, 1979). According to this theory, many people are more susceptible to losses than gains (Greenstein and Xu, 2015) [19]. Concordantly, Aren (2019a) [2] states that selling an owned asset is associated with loss in individuals' minds, and having a new asset is associated with gain. For this reason, individuals demand more than the amount they will pay to have the asset to give up the asset. In his book "Thinking, Fast and Slow", Kahneman (2013) [25, 26] says that a friend of Thaler, who was an academician, did not pay more than $35 for a bottle of wine, but he did not accept a price of less than $100 to sell the same wines, and relates this to endowment bias. This behavior is also valid for many people. Some entrepreneurs want a price that is far above the market value as they build their companies with great difficulty and then bring them to a certain level. Some authors (Carmon and Ariely, 2000; Kleber *et al*., 2013) [27] state that there is an anxiety of losing an asset possessed under this behavior. Zellweger *et al*. (2012) [54] state that the two dimensions that make up the endowment effect in family businesses are the socio-emotional dimension and the material (monetary) dimension. What makes the sales decision difficult is not only determining the right price. Though this is also extremely important, and as Franciosi *et al*. (1996) [18] stated, people often have cognitive deficiencies in this regard. However, having a company also has the characteristics of managing people and creating social status. Nevertheless, the person who intends to buy the firm will not want to pay an extra fee since this socio-emotional benefit has not been achieved yet. The different price proposal and expectation formed in this way can be explained by the endowment effect. At this point, loss aversion and ownership merge on a common basis.

Nataf and Wallsten (2013) [33] emphasizes that people tend to ascribe more value to their assets than to similar ones, even if they do not know the value of their assets. Because while those who have assets pay attention to the positive aspects of the asset, those who do not have pay attention to the amount they will pay (Kleber *et al*., 2013) [27]. Aren (2019a) [2] states that people sometimes make emotional bonds with the assets they own. Since the sale of the asset will mean the loss of “shared feelings in the past”, people become reluctant in the disposal process. Similarly, Rick (2011) [40] states that it is related to self and that the loss of assets can be perceived as a decline in emotions and status. For this reason, this effect is used in automobile and home sales.

Reb and Connolly (2007) [39] state that there is no need to be the real owner of the asset for the endowment effect to occur. Even short-term ownership of the asset can create this effect. For this reason, practices such as "opportunity to try on the weekend" and "test drive" in automobile sales can create ownership and attachment effects. People who own the car for a certain time do not want to give it up. For this reason, in the test driving and trial opportunities, a higher number of people intend to buy compared to the model in which a test driving or trial opportunity is not available. People can buy the asset in order not to give up these superior features that they have for a temporary period. Similarly, real estate brokers also initially show people a house that is higher profile than they plan to rent or buy.

This sometimes creates attachment in people. Additionally, Ericson and Fuster (2014) [17] point to another form of the endowment effect, known as the Ikea effect. Accordingly, the way of acquiring an asset is also effective in endowment bias. Products bought as disassembled and prepared with effort create a higher binding effect. Similarly, it is also important that a gain originate from reward or consolation. People attribute more value to small prizes won in a lottery, compared to the larger consolation prizes won for missing the grand prize by a small margin.

Confirmation

Confirmation bias is defined as searching for and high weighting of information that supports the first judgment, and low weighting and ignoring of information that does not support this conclusion (Nickerson, 1998; Charness and Dave, 2017) [34, 12]. The underlying reason for this behavior is that verification is easier than falsification. Nothing is needed other than the information used to verify an existing judgment. However, in order to falsify, there is a need to give justification for the new judgment to be created, as well as new information (Nickerson, 1998) [34]. For this reason, it is a relatively more laborious process.

When evaluated from this point of view, managers had collected and evaluated information on time to form their judgments and created a judgment by adding their experience. As the information that supports these judgments comes in, they trust both information and their judgments. But if information that contradicts their judgment comes, they first question the source of information. Then they investigate the accuracy of the information and eventually assess whether there is sufficient justification to change their judgments. As can be seen, while the verification process is extremely simple and fast, falsification is longer and questioning. At the same time, people are lazy and mostly busy (Thaller and Sunstein, 2008) [50]. For this reason, people often prefer to put less effort to verify, rather than to make a great effort to falsify.

Aren (2019b) [3] mentions two different confirmations; cognitive and psychological confirmation. Cognitive confirmation is seen in collecting and weighting information. Psychological confirmation shows itself at the evaluation stage. If cognitive confirmation remains incapable, information is used to support judgment subjectively. It is frequently done especially in the evaluation of economic information. In evaluating information such as unemployment, inflation, capacity utilization rates, PMI and consumer confidence index, managers may tend to decide according to their own opinions.

When the process of confirmation is examined, Aren (2019b) [3] states that this process is done with six different applications: confirmatory information search (Nickerson, 1998; Ch'ng, 2010; Charness and Dave, 2017) [34, 11, 12], the weighting of information differently as sided (Nickerson, 1998; Ch'ng, 2010; Charness and Dave, 2017) [34, 11, 12], ranking and quantitative evaluation of information as sided (Nickerson, 1998) [34], sided interpretation (Nickerson, 1998 [34]; Charness and Dave, 2017) [12], neglect of conditional probability (Nickerson, 1998; Ch'ng, 2010) [34, 11] and creating imaginary relationships (Ch'ng, 2010) [11]. Confirmatory information search is seen at the information gathering stage. New information that supports the judgement gives confidence and peace. In this way, anxiety about making erroneous decisions that managers can experience is eliminated. Following this, the second-sided behavior is to give too much weight to the confirmatory information. Another frequently used verification behavior is to accept the importance of the confirming information higher than it already is and to give little weight to the falsifying information. If there is no bias in these two stages, a tendency to confirm can be seen in the ordering and evaluation of the information. Expressing non-supporting information first, and supportive information later (recency effect) and the presentation of lots of information with low reliability as sequentially help confirmation. In the fourth stage, sided interpretation is used. Sided interpretation is the acceptance of information that can be evaluated both positively and negatively as confirmatory wrongly. Another verification error is ignoring conditional probabilities. The result of many events in social and economic life depends on the result of another event. If the probability of providing high turnover from the new product to be introduced to the market is 90% in the case that the competitors do not launch substitute products in a short time, managers wrongly evaluate the success of the new product by ignoring the possibility of launching substitute products by competitors. Whereas, if the competitors are 60% likely to launch substitute products in a short time, the probability of succeeding is actually 54%. The last practice of the verification trend is to create imaginary relationships. When no objective information can be found to confirm a judgment, it can be attempted to verify by using fake relationships. Throughout history, such imaginary relationships have been created: estimation of the direction of the economy from women's skirt lengths, and the S&P index from the butter production in Bangladesh, etc. (Aren, 2019b) [3].

Li *et al*. (2019) indicated that confirmation bias has an impact on internal company decisions. Within this framework, confirmation bias was found in decisions of foreign resource use (De Treville *et al*., 2009) [16], merger (Bogan and Just, 2009) [8], marketing (True and Morales, 2019) [51] and accounting (Perera *et al*., 2020) [37]. But Bagchi *et al*. (2020) [5] could not find any evidence of the relationship between this bias and the firm's profitability. Additionally, several cognitive and psychological factors can cause confirmation bias. Finally, it is accepted that risk aversion causes confirmation bias (Nickerson 1998) [34] and confirmation bias causes risk taking (Aren, 2019b) [3].

Self-Control

Self-control is defined as the ability to control impulses (Baumeister, 2002) [7] or the ability of the future self to control the current self (Strömbäck *et al*., 2017) [19]. In the economic context, it is accepted as a deferral behavior of today's expenditures in order to save money for the future (Sahi, 2017) [42]. However, people have poor self-control ability (Shiller, 2006) and prefer the lower gains that they may have immediately, rather than the high gains of the future. Peterson (2007) [55] in his book titled "Inside the Investor's Brain: The Power of Mind over Money," says that individuals prefer $10 that they have immediately when they are asked to choose between gaining $10 now or $11 a week later. From this point, self-control bias is accepted as the impulse, desire and behavior that makes one prefer low-return consumption to high-return investment (Aren, 2019a) [2].

Self-control is also a trend seen in managerial decisions. Studies show that there is a positive relationship between self-control, and business and individual performance (Lauring *et al*., 2019) [30]. Firms prefer today's income to higher income of the future as the future is uncertain. Similarly, managers also tend to choose projects with lower returns, which will yield immediate results, rather than investments with great benefits in future. Of course, the only factor is not being able to control the impulses. Reasons such as the firm not being sure of the future profit or not seeing the manager's guarantee to be in the company in the future are also effective. For this reason, Sahi and Arora (2012) [43] regard this bias as extremely human behavior. However, due to the short-term perspective, it does harm the business. This behavior dominating the whole company may prevent innovation. At the same time, even if innovation is made, it leads to the preference of incremental innovation, which is seen safer, to radical innovation. Therefore, the status quo trend dominates overtime in the company.

Behavioral life cycle theory stated that there is a planner, who long-term thinking, and a doer, who is worried about the current situation, inside of a human, and that these two are constantly in conflict (Strömbäck *et al*., 2017) [49]. The main underlying facts of this theory are self-control bias and mental accounting. Mental accounting says that individuals put their wealth in various mental buckets and evaluate each bucket individually. For this reason, contrary to the assumption that the neoclassical approach has a certain risk/return acceptance of individuals, mental accounting addresses having a separate risk/return acceptance for each bucket. In other words, it states that there is no general risk perception. Shefrin and Thaler (1988) [46] mention three different mental calculations in humans in the behavioral life cycle theory: current income, current assets (wealth) and future income. People are willing to use their current income more than their current assets and their current assets more than their future income (Selart *et al*., 1997) [45]. When evaluated from this perspective, behavioral life cycle theory is based on the same basis with self-control bias.

The most familiar test for self-control bias is the Marshmallow Test, developed by Mischel and his team. In this study, which was carried out for the first time in 1972, a group of children at preschool age were given one marshmallow each and they were told that they could take a second if they waited 15 minutes without eating the one they had already been given, but if they did not wait, they would need to be content with what was given only. About 67% of children failed to wait. This is evaluated as an indicator of self-control weakness in individuals. In addition, when Mischel and his team continued to examine these children at a later age, they found that those with auto control skills showed higher academic success (Mischel, 2014). From this point of view, Mischel (2014) [32] states that willpower is not an innate feature, that cognitive and emotional control skills can be learned, increased, and even developed to operate automatically.

Recency Effect

Recency effect is believing that new information is more important than old information without rational reasons, and giving more weight to new information in the decision phase (Aren, 2019a) [2]. It has a negative effect on the decision, due to focusing on only the recent events and their frequency. In particular, it leads the exceptional events that took place recently to have a greater weight than they should have on the judgment. Thus, in the pandemic crisis in 2020, many organizations suffered from irreparable damage. However, as Wimbledon Championships was insured for the pandemic, it came into prominence as one of the rare organizations that did not suffer a loss. This managerial success of Wimbledon Championships will shed light on many companies and will lead them to demand similar insurance assurances. Perhaps this kind of pandemic has not been experienced for 200-300 years, and it may not occur again for a long time in the future. However, the possible increase in pandemic insurances soon can be explained by the recency effect. Interestingly, Royal (2017) [41] found that individuals have the irrational belief that more recent events are more informative and that people who encounter the same risk many times take out less insurance and take more risks; and stated that this can be explained by the recency effect.

According to the literature review, the recency effect can also be handled within the framework of belief adjustment theory. According to Belief adjustment theory, the order of the information has an effect on the decision. The sequence is evaluated in two ways: primacy and recency effect. The primacy effect is mentioned if the first information has more effect on the decision, and recency effect if the last information has more effect (Habbe and Mande, 2016) [22]. However, it is generally accepted that recency effect is stronger (Palczewski *et al*., 2016) [36].

In managerial decisions, the impact of the recency effect is seen many times and Arnold *et al*. (2000) [4] indicate that it increases more with experience. In firms operating in a large number of countries, recent developments in the related countries are often attributed more importance than they should be. In fact, as Habbe and Mande (2016) [22] emphasize, recent developments do not have a great importance on information, but they have a strong influence on decisions. This asymmetrical relationship often causes manipulation. High profit reporting of firms in the last two years before opening to the stock market helps high pricing during the period of issue to the stock market. For this reason, many businesses tend to increase the profit reported in the recent periods before issuance. Similarly, the impact of the recency effect can be seen in loan allocation. It has been found that employees working in the credit allocation department in financial institutions have made erroneous decisions due to the impact of recency effect. (Guiral-Contrares *et al*., 2007) [20].

Conclusion

There are many decisions that managers have to make in business. Some of these are routine decisions they make every day. Others are decisions that they make for the first time or that are rare and have greater relative effects. In the evaluation process related to these, thought systems called System 1 and System 2 become active. While system 1 represents faster and affective based decisions, system 2 is slower and cognitive-based decisions. Although the managers think that they make decisions, which are complicated and have big effects, with intelligence and rationality, the truth is the exact opposite. Such decisions are made on an emotional basis, due to the existence of a large number of variables in complex decisions and the lack of information about their possible consequences as they are taken less frequently. In fact, making decisions based on emotion or reason does not guarantee the accuracy of the decision. In other words, what is important is that the decision is taken with which competence rather than how the decision is made. One of the requirements is that the person has an awareness of himself/herself.

In this chapter, various biases that managers may be exposed to are evaluated in different aspects. The first one handled is regret aversion. Regret is the feeling felt when the chosen alternative is not the best. It is painful to understand that they are deprived of possible gains, or to suffer more loss. It also damages self-esteem due to an unsuccessful choice. There are different types of regrets. Process regret is the emotion experienced due to the failure to operate the ideal decision process. There is no need to see the results to experience this kind of regret. The decision maker feels this regret due to lack of collecting information and insufficient analysis. In fact, it encourages better information gathering and a qualified evaluation process as of this feature. Result regret is experienced when it is understood that the decision is not the most ideal. For this reason, feedback is needed. If the result is as desired, the lack in the process does not matter. Alternatively, no matter how perfectly the decision-making process is run, regret will be felt if the desired result is not achieved. Another type of regret is remorse arising from action or inaction. When the manager is at the decision stage, s/he may not take any action by choosing the status quo or s/he can take action and actualize a different practice. Both behaviors are likely to be true or false and may cause regret.

Another bias discussed in this chapter is the endowment effect. It means that people evaluate their assets when they have them and when they do not differently. In general, the prices demanded by the owner of the assets are higher than the ones offered by those wishing to buy. The underlying element of this is the emotional bond that some people establish with assets. It is a strong effect especially seen in some entrepreneurs. They want more than the value offered in the market to sell their firms, which they have established and brought to a certain level. Similarly, it can also be seen in decisions such as the decision to move the headquarters to a different location, the sales decision of a brand created by the business, etc. The effect of this bias is strengthened when the manager views the assets as a part of his/her past and emotions, not as a commercial product. For this reason, this effect is weakened in professional salespersons. For example, painters can sell their paintings since they succeed in avoiding this kind of emotional bond.

Confirmation bias, another of the biases discussed in this chapter, is the collecting, perception and evaluation of information. Generally, it is a behavior seen in managers with increasing experience and age. Their judgments damage the objectivity of the decision process. Success causes overconfidence. It also leads to commitment to the judgements and to seek to confirm information constantly. Experienced and successful managers may have strong prejudices due to their cognitive and emotional abilities that develop over time, but the success of prejudices is seen in similar events. In cases that are encountered for the first time or the excessive commitment to pioneer decisions in the changing trend periods may cause significant errors.

Lack of self-control is the preference of daily consumption or low return, ignoring future needs or higher returns in the future. It is a bias with extremely harmful effects for companies as it causes a short-term perspective. Even though the long-term trend will have more beneficial results for businesses, the uncertainty that managers feel towards both the market and their careers can lead them to short-term returns.

Finally, the recency effect is discussed. The recency is to give weight to the latest information or events above their real possibilities. Managers are often affected by this bias because of the anxiety to follow new trends. The belief that the market is highly volatile causes low weighting in old events and high in new events. Of course, the market does not have a "memory" on some issues. But it is also wrong to think that the markets have no memory on any subject. New information is important for changing consumer demands, spending patterns, etc. However, fluctuations in economic crises are stopped over time. Overreacting to new information during these periods often causes erroneous decisions.

Klein (1991) [28] mentions the top ten decision traps and the corresponding correctional guidance. These are: (1) plunging in, (2) frame blindness, (3) lack of frame control, (4) overconfidence, (5) shortsighted shortcuts such as using available data, recent data, and anchoring & adjustment strategies, (6) shooting from the hip, (7) group failure, (8) poor use of feedback, (9) failing to keep track of past decisions and (10) failure to audit the decision process. In this context, there are some simple principles that decision makers can apply in order to get rid of the effect of biases. For example, it may be useful to create several questions that need to be answered in relation to the decision (Klein 1991, 75) [28]. In this way, the decision-maker does not overlook the issues that need attention, does not anchor some values and can reduce the effect of emotions. In addition, offering alternatives differently may sometimes change preferences. For this reason, the decision-maker should be able to answer the question that is "What would his/her preference be if the same option was presented differently?". Creating awareness of biases, such as overconfidence, anchoring and recency effect, discussed in this chapter and in the other chapter will also increase the quality of the decision. Intuition can be the cause of both good and bad decisions, as also discussed in this section. Especially when uncertainty is present, intuition comes into play. While the situation subject to the decision has been encountered before and the intuition that has developed in the decision maker causes a successful decision, otherwise, it becomes the source of the wrong decision. When group thinking is not used correctly, it leads to a biased decision. Although it is believed that taking joint decisions with more than one person's rather than a person's decision will reduce the influence of biases, unanimous decision-making or group compliance behavior can lead to more unsuccessful decisions than individual decisions. For this reason, reviewing decision-making procedures, continuous checks and corrections enable better decisions. As a result, professional managers, like every person, are "normal people" with minds and feelings. They cannot be expected to make absolute rational decisions. Likewise, there is no guarantee of the correctness of the decisions they will take.

The important thing is to develop decision-making skills that have the competence that the mind and improved emotional skills can take together. This chapter helps to give clues that will shed light on this competence.

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