

About Mental Accounting

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ABSTRACT : Why are people willing to spend more than cash when they pay with a credit card? Why are they saving up for retirement but also in the same time why are they accumulating credit card debt? If someone else is paying your credit card debt, you have a perfectly reasonable justification. But there is also someone whom are not so lucky. Why do we ignore the fact of a payment that will be out of our pocket on the statement payment date? How does the journal in our brain work? Where can the money come from and where can the money go? The purpose of this article, which tries to answer all these questions in terms of mental accounting, is to examine in depth the mental accounting, which is one of the behavioral patterns of the investor in behavioral finance.

I. What is mental accounting and why is it important?

Accounting generally occurs in the forms of recording, classifying, summarizing, reporting and analyzing financial transactions of businesses. It is acceptable for people to need accounting for their own expenses and earnings. However, if this situation only takes place in the mind and turns into invisible journal entries, it will be necessary to mention the mental accounting tendency at this point.

The concept of mental accounting was initially used by Richard Thaler (1985). Thaler defined mental accounting as individuals' organizing, evaluating and recording their financial activities, and he argues that people act under the influence of mental accounting and shape their behavior accordingly.

Indeed, we often make our consumption decisions around certain categories, such as the "source" or "intention to use" of money. There are many examples such as allocating the salary of a less earning family member only to kitchen expenses, using holiday bonuses only for holiday needs, using a credit card for clothing needs while trying to save money for children's education. It is called "mental accounting" when we spend our money according to different categories that we have created in our minds. In other words, mental accounting, which explains how individuals, investors and households keep records of their financial status and investments, is the mental partitioning of money according to people's needs such as food, rent, electricity, entertainment.

Credit cards have been the main subject of many scientific studies since the day they entered our lives. As a matter of fact, the tiny banks we carry in our pockets represents the best examples of mental accounting.

Here is the question; Why are people willing to spend more than cash when they pay with a credit card? Why are they saving up for retirement but also in the same time why are they accumulating credit card debt? Seriously why are we acting like this? If someone else is paying your credit card debt, you have a perfectly reasonable justification. But there are also someone whom are not so lucky. Why do we ignore the fact of a payment that will be out of our pocket on the statement payment date?

Mental accounting theory answers these questions as follows; Instead of thinking about money in terms of "results" as in formal accounting, people treat it differently depending on factors such as the origin of money and its intended use.

According to the concept of "substance priority", which is one of the basic concepts of accounting, essence has priority over form. Let's say you bought a computer. That's the format. The purpose for which you bought the computer is the essence. In other words, if you bought the computer to use it, you save it in fixtures, if you bought it to sell, you save it in commercial goods. Mental accounting, on the other hand, deals with payment besides substance and form. If the payment is made with a credit card, a safe deposit box, or a loan from your mother, your account for it differently.

So how does the journal in our brain work?

Our brain first groups our expenditures, savings and investments in different mental accounts, then tries to predict the economic results of all transactions, categorizes them with their economic consequences, and finally keeps the record in the evaluation order.

In this case, where the money comes from and where it goes becomes important (Thaler, 1999).

So where can the money come from?

Money can come from many sources such as work, inheritance, gambling, and bonuses.

The place where the money comes from is the primary issue in the journal entry to be kept in mental accounting. Where the money will go is the second priority.

So where can the money go? Many places will be possible, such as household necessities, hobbies, debt payments, investment and savings accounts.

Now I guess it's time to make a few clarifications about where the money comes and goes.

For many years, I have taught many accounting courses, especially general accounting, and I did not use the phrase "incoming debt, outgoing debt". I think it's pointless to confuse the young minds who are already prejudiced against mathematics and accounting. Because my job is to overcome prejudices.

So, what did I use instead of this general law sentence? Money has direction. Money comes from below and moves upwards

For example;

Banks 100

Case 100

In this journal entry, the money came from below, that is, from the safe. The bank account shows where the money goes. This is exactly how the journal entry used by our brain works. In other words, mental accounting is about the meaning attributed to money. Thaler (1985), who is accepted as the father of mental accounting, explains this meaning attributed to money with three features.

First, individuals construct gain and loss functions. It sets a reference point in each function. In this way, instead of dealing with all transactions together, they evaluate them separately.

Second, the gain function is concave and the loss function is convex. This feature reflects the basic psychophysical principle that the difference between 10 TL and 20 TL is greater than the difference between 1000 TL and 1010 TL (Thaler, 1999). The basic law of psychophysics states that the stronger the first original impulse, the more intense the next impulse must be for the resulting response to increase. In other words, for the intensity of emotion to increase in an arithmetic ratio, the impulse must increase in a geometric ratio.

One of the most memorable examples of mental accounting is the example of credit cards versus retirement savings. Mental accounting often leads people to make irrational investment decisions and behave in ways that are financially inefficient or harmful, such as funding low-interest savings account while carrying large credit card balances.

As we said at the beginning, if you do not pay your credit card statement debt, there is no problem. But if you are one of those who have to pay the statement debt themselves, like me, you will have to think a little more carefully. You may be saving up on credit card debt as well as saving money for retirement.

Indeed, although the difference between 1000 TL and 1010 TL and between 10 TL and 20 TL is equal, the feeling will be relatively different whether it is a gain or a loss. In other words, it is not possible in this example to increase the intensity of the emotion arithmetically.

The third feature is the difference between the emotional intensities of gain and loss. That is, the emotional intensity of winning 100 TL and losing 100 TL is different from each other. These effects of mental accounting refer to different values that people ascribe to money, based on subjective criteria and often with harmful consequences.

It is possible to explain this situation with a different example. People sometimes separate decisions that, in principle, should be consolidated. For example, most people prepare a separate household budget for food and a separate household budget for entertainment. At home, people do not eat lobster or shrimp every day, because such dishes are more expensive than other seafood. But when they go to a restaurant, they order them, even if they cost much more than a simple dinner. They can save even more if they eat lobster or shrimp at home and order a simple fish at the restaurant instead. This is because they made a distinction between eating at home and dining in a restaurant. And if you're paying the restaurant bill with your credit card, the situation gets weirder.

The importance of where the money comes from and where it goes is a fundamental subject of mental accounting. Richard Thaler(has performed a game that reflects the importance of where the money comes from in mental accounting.

According to this game, if they give you \$30 free money and then make an offer like this;

Let's play a coin flip game for \$30. If you win you will earn another \$9, if you lose you will lose \$9. What would you do?

At the end of the game, 70% of the participants preferred to gamble. Because according to them, the \$30 initially given to them is money that has been found or earned without effort. In other words, the place where the money comes from has found its place in the journal entry. However, the decision to gamble with a hard-earned \$30 cannot be made so easily. The real question in this game is: did the participants think that a little fun with a found coin wouldn't hurt?

Thaler also benefited from the framing effect while editing this game. According to this game, the participants were told the following.

Let's play a coin toss. If you win you will get \$39, if you lose you will get \$21.

You can choose not to play a coin toss. In this case, you will have 30\$ in your pocket. See what happens when mental accounting and the framing effect work simultaneously?

The main difference here is that these people were not suddenly given \$30 as in the first stage game. Instead, options are presented in terms of their final payoff at the start of the game. As you can imagine, the second group reacted differently than the first. Although the economic prospects they faced were the same as those presented to the first group, only 34 percent chose to gamble. In short, sometimes people create mental calculations to justify seemingly tempting but actually mindless actions.

Mental accounting refers to the codification, classification and evaluation of financial decisions. There are many interpretations of mental accounting. The first interpretation derives from Shefrin and Thaler's (1988) behavioral life cycle theory, which argues that people mentally divide wealth into three classes:

1. Current income,
2. Current assets and
3. Future income.

Accordingly, the propensity to consume is closely related to current income. Concepts of future income, on the other hand, require a more conservative approach and are kept away from consumption.

Behavioral life cycle theory is a theory that contains the concepts of mental accounting and self-control at its core. The theory is that individuals tend to frame their wealth using some form of mental accounting to develop a hierarchy of spending based on wealth type. For example, the money in the retirement account is sacred and cannot be used for daily expenses. In other words, the money in the retirement account is future income and cannot be related to current consumption.

Another interpretation of mental accounting describes how different financial decisions can be evaluated together (that is, as if they belong to the same mental account) or separately. The theater ticket game of Kahneman and Tversky (1984) can be given as an example. According to the game, the following question was asked to a group of participants. You paid 100 TL for a theater ticket and realized that you lost the ticket while entering the hall. Would you buy a ticket again for 100 TL? A second group of participants was asked the following question. You reserved 100 TL for a theater ticket and realized that you lost the money while entering the hall. Would you buy a ticket for the theater by paying 100 TL?

The mental journal entries of the participants in the first group are as follows; The money came from the safe, went to the theater ticket. In this case, the brain under the influence of mental accounting bias knows that he has already paid for the theater ticket and cannot find a place to process the 100 TL he will pay for the theater ticket again. According to him, the only problem with this journal entry is that the theater ticket expense has not yet been incurred. Since the theater ticket is also lost, this expense will never become an expense. This is what the brain has trouble perceiving. When I already have a journal entry that I know will not be expensed and there is no way out of the safe, it seems unreasonable to make another expense for the exact same reason.

In the question asked to the second group of participants, things change. Accordingly, there is no 100 TL paid to watch the theater yet. In the journal entry, there is no exit from the cash account. That's why the mental accounting disposition approves of buying tickets for this theater.

However, in both cases, the loss is 100 TL, but individuals who refrain from buying a new ticket in the first case are very eager for the ticket in the second case, since mental accounting causes the journal entries in the brain to be kept different. This situation can also be explained as follows: Mental accounting bias causes people to see a total cost of 200 TL, in the first scenario, two tickets and 100 TL for each ticket. On the other hand, most people somehow consider separately the 100 TL cash loss and the additional 100 TL ticket price in the second scenario. Mentally these are debited in two separate accounts. In other words, 200 TL is not debited in a single account. In both cases, the concert ticket will undoubtedly cost 200 TL.

Another experiment with mental accounting was done by Prelec and Simester (2001). In the game, it is announced that a closed auction is held for the tickets of the Boston Celtics game. Half of the auction participants were informed that the winners must pay the ticket prices in cash within 24 hours, while the other half were informed that the winning bidder would pay by credit card. Prelec and Simester (2001) then compared the average offers made within each group and came to the following important conclusion. Bidders who thought they trusted their credit cards offered almost twice the price of cash offers. In other words, it was observed that they value cash more than credit card transfers and behave cautiously when spending, even if both payment methods are ultimately withdrawn from the participant's own money.

Mental accounting is a deeply rooted bias with many manifestations and can cause a variety of problems for investors. The most basic of these problems is the placement of investment assets in separate "accounts" by asset type, without considering the potential correlations linking investments across categories.

Tversky and Kahneman argued that the difficulty individuals experience in dealing with the interactions between investments prompts investors to create tiered, pyramid-shaped portfolios (Statman, 2004). Each tier addresses a specific investment objective, regardless of any additional investment objectives. For example, when the goal is to preserve wealth, investors tend to target low-risk investments such as cash and money

market funds. They mostly rely on bonds and dividend-paying stocks for income. Investors turn to riskier instruments like emerging market stocks and IPOs for a harder reward. Combining disparate assets whose performance is not correlated is an important consideration for risk mitigation, but this is often neglected in the "pyramid" approach.

After the logic of where money comes and goes in mental accounting, journal entries, games, experiments and pyramids that actually give the same result but work differently for some reason, it's time to give some real examples. For example, when you run out of credit card limit while saving up to buy a new item! It's unreasonable to hold onto a savings jar that pays little or no interest while simultaneously maintaining four-digit credit card debt each month. Wouldn't it be better to first get rid of your credit card debt, whose interest expense rises with every non-payment, and then focus on your savings jar?

An example can be given from the capital markets. Many investors divide their holdings between safe portfolios and speculative ones, assuming that they can prevent the negative returns of speculative investments from affecting the overall portfolio. In this case, the difference in net worth is zero. For some reason, the investor's time and effort spent in separating the portfolios are not recorded in the expense account. Therefore, remember that the safe and risky assets in your portfolio are in a single portfolio. You may think that you put these investment assets in separate baskets in your brain. However, in real life, all investment costs are paid from a single point, and they all affect one point: Your pocket!

So, when you have to sell one of two stocks, one winning and the other losing, out of a need for cash, which would you sell? It wouldn't be unusual for you to sell the winning stock if mental accounting and loss aversion biases kick in. Because the sadness caused by giving up the losing feeling is relatively higher than the sadness caused by giving up the winning feeling. Ultimately, when you sell the loser or win in the future, the feeling takes over our minds.

Let's examine the possible investment errors caused by mental accounting bias with general headings. First, the issue of sunk costs may come to the fore. Sunk cost can be explained as follows: let's say you order a meal. Even though you were not very hungry, you were deceived by the campaigns and wanted enough food for three or four people. Eating these meals until you're done isn't about the size of your stomach, according to mental accounting. It's about your brain making up for the cost of this meal.

Not being able to calculate the opportunity cost correctly is another negative effect of mental accounting on investors. Putting 25% of your income into your savings account instead of paying off credit card debt will deprive you of the potential return of the unselected alternative. Decreased credit card debt and non-increasing interest expense are the very opportunity cost.

There are two different possibilities of return on stock investments: capital gain and dividend gain. The mental accounting bias still does its bit, keeping these two returns in separate accounts. Many people feel the need to protect their capital (i.e., principal) gains while choosing to spend their dividend earnings. As a result, some investors follow their income streams and may unwittingly erode the principal in the process.

It is common for employees to invest in their own businesses. This situation, which is one of the examples of appropriation bias, also manifests itself in mental accounting bias. Investing in the workplace, which is one of the first issues that come to mind when the Enron scandal is mentioned, can put investors (for this case, employees) in difficult situations, as in this scandal. Mental accounting bias can cause investors to allocate assets differently when it comes to employer stock.

It is important for investors to get rid of the possible effects of mental accounting, which is a cognitive bias, or to get over it with the least damage. However, before that, it is necessary to know the investment mistakes that investors will face.

This effect, known as the house money effect, is one of the most important results of mental accounting, but it is also defined as a bias on its own in some sources (Thaler & Johnson, 1990). It describes a cognitive bias where investors take a higher risk when reinvesting than when they invested their initial capital. This bias explains the tendency for investors to take greater risks because they are already making a profit on their investment. For some reason, the investor does not take these high risks in his reinvestment in the first investment. In another way, the house money effect is the situation in which the risk appetite of the investor, who does not take too much risk for the investment amount put forward during the initial investment, increases while directing the profit from this investment to the investment again.

As a matter of fact, it can be said that the more profits are made for the house money effect, the more risk you take. Individuals investing in stocks and other capital market instruments tend to purchase higher-risk stocks or other higher-risk assets after profitable trades. For example, after making a short-term profit on a stock with a beta of 1.5, it is not unusual for an investor to next buy and sell a stock with a beta of 2 or more.

It is also possible that loss aversion, which is an emotional bias, and the house money effect can act at the same time. Let's say an investor more than doubles his profits on a long-term investment instrument he has held for four months. Recent literature has argued that risk-taking behavior is influenced by previous monetary gains and losses. After perceiving monetary gains, people are willing to take more risks. We define this situation as the

house money effect. Another literature based on prospect theory and loss aversion suggests that people avoid risk in the area of gain and seek risk in the area of loss.

The adjacent chart shows the hypothetical effects of morning gains and morning losses on afternoon risk taking. If you started the day with loss, you are likely to exhibit loss avoidance behavior in the afternoon. On the other hand, if you started the day with a profit, you may like to take more risks.

Mental accounting bias, along with another cognitive bias, anchoring bias, can cause investors to succumb to the house money effect, where risk-taking behavior increases as wealth increases.

While mental accounting opens invisible journal entries in our brain, the tendency to anchor creates an invisible profit and loss table in our brain. Accordingly, earnings higher than the anchored figure are recorded as profit, and lower earnings are recorded as loss. Investors displaying this logic are irrational because they do not see all money as tradable. There are a few points to note at this point. How was the anchored figure determined, was it really a profit or was a loss made, or did you decide that you lost by anchoring your cost figure or did you make a loss according to the real prices in the market? All of these questions are about how the anchor figure is determined, and biased financial decision-making can of course endanger a portfolio.

Journal entries opened in his brain by mental accounting cause investment baskets to be evaluated separately. The issue that investors do not know or do not want to know is that all instruments in this investment basket are correlated with each other. It is necessary to show that the portfolios of the investor, which they keep in separate mental accounts, are in fact related and will affect each other. It is important to effectively explain the basket logic and a briefing about the harms of over-correlation and the benefits of adequate diversification. Because the mental accounting bias is a cognitive bias, its impact can be easily mitigated with training.

By education, we do not mean financial education in business schools, of course. However, getting support from an investment analyst will allow you to see the correlations of the instruments in your investment basket with each other and to reduce the risk in the portfolios you create, while not losing out on returns.

Although our brain knows accounting better than we do, it is our job to remind it of the important point.

I have a special interest in the concept of social responsibility, one of the basic concepts of accounting. According to this concept, the business is expected to keep an equal distance from all interest groups during accounting transactions. In other words, when examples such as taxes, which are the expectation of the state from the enterprise as an interest group, employment as the expectation of the society as an interest group, profit, which is the expectation of the partners as an interest group, are counted, accounting procedures should ensure that these expectations and interest groups are kept at an equal distance. Otherwise, when the accounting transactions are designed to pay more taxes to the government, the only thing you will gain is the tax record. Or, a business that stands closer to society is one that is loved by the public but has to go bankrupt at the end of the year if it keeps all its accounting transactions geared towards employment prospects.

In the light of these explanations, another important issue that we need to know is the expectations of the partners. After the capital invested with the expectation of profit enters the business, the purpose becomes different. In other words, the expectation of the partners may be profit, but the expectation of the enterprise is value maximization. This is how it is written in the new generation accounting resources.

The situation is similar for the individual investor. The priority is to maximize the total return and the value of your portfolio. Mental accounting may not allow this point of view for the aforementioned reasons. The best way to prevent mental accounting from undermining total returns is to remind your client that total returns are the number one priority.

It's important to focus on overall portfolio performance, not just piecemeal aspects like principal or yield. We have reviewed the Enron and Worldcom events in previous chapters. We've seen how mental accounting creates protectionism when investors invest in the companies they work for. The employees who did not want to see that they were on the sinking ship, said goodbye to their retirement dreams, and had extremely devastating results. Employees who were not the captain of the ship suffered more losses than the rats that left the ship first. Because the less you save, the less you invest, and the less you lose with less investment, the more loss you will suffer. This problem arises once again with mental accounting. The client should be educated on the benefits of a well-balanced, diversified portfolio, as in the case of portfolios heavily dominated by company stocks.

We are not saying that you should not buy the stocks of the companies you work for. We do not say that there should be no investment instruments belonging to that company in your portfolio. We say reduce your risk with the right diversification and keep your loyalty to your company special to your colleagues. We say don't turn your ears to the negative news about your company.

Another recommendation would be about the house money effect. As you may recall, the house money effect is a manifestation of mental accounting that can cause people to take more risks as their wealth increases. This specific bias is perhaps the most harmful of all cognitive biases; however, education can help investors overcome this. As with all cognitive biases.

Bias, which is the cognitive or emotional reason for the irrational or limited rational behavior of investors, often manifests itself with forebodings. Statements such as "I did this before, I will get the same result if I do it again" or "I have not done this before, so I should not do this again" will mean rediscovering the laws of physics that

will be valid under all conditions. However, it has been a long time since the law of gravity and the theory of relativity were put forward. According to these laws and theories, we can go into space today, we can make video calls with our relatives in different countries without a visa requirement, we can give up our investment in the Chinese stock market within seconds and make new investments in the US stock market.

All of this happened thanks to people updating their old beliefs. With the exception of Galileo, who had the courage to say that the earth was round and took a step back, we would be deprived of many things that make our lives easier today if many scientists did not claim that ancient pines were glasses.

So the conclusion to be drawn here is this: the church, which formed a community based on the idea that the world is not round, made a profitable investment. And he has no patience for any idea that would undermine this gain.

You, too, may have a long-standing investment. Who knows, maybe you have established an emotional bond with this investment. In this way, your brain may be keeping this investment vehicle in your mental balance sheet of assets that cannot even be offered for sale. If the new information about your investment is not very encouraging and you can still make a profit when you sell the investment today, you should vacate your position immediately.

II. Discussion

Mental accounting is one of our prejudices that can work without realizing it. If you have a mental accounting bias and tend to keep savings, which is one of the most obvious consequences, in separate accounts, for example, if you see the savings you make for your child's education expenses as sacred and never plan to use it for current expenses, this may result in a bad result for you but good for your child. In summary, mental accounting can help an individual achieve investment-related goals. Once a certain amount of money is deposited into a retirement account, that money cannot be used by the account holder for spending. In this way, he can skip unnecessary expenses and save the same money for the future.

When individuals place each goal and the wealth that must be used to achieve each goal in a separate mental account, they may overlook the risks or correlations of the mental accounts. This is true not only for adults but also for children. There is a thing called "birthday money". Accordingly, a child's acquaintances and relatives give him some money in an envelope on each birthday. Except for a few forward-thinking young geniuses, most kids eagerly go out and buy the weirdest things they can get and don't need. Here is the boy's reasoning: I wasn't expecting money. It came when I wasn't expecting it and should be consumed immediately. But the same child also saves money for a toy for a year. His reasoning here is this: I work hard by saving money for the toy I want. No one gives us birthday money when it comes to adults. But we can win the lottery. The logic is the same: money that comes unexpectedly. Lottery winnings are at the center of mental accounting more often than almost any other amount of money. After all, it's hard to imagine more spontaneous or undeserved wealth than the money you make from a random scratch ticket at a gas station. Indeed, countless lottery winners have managed to go bankrupt after spending their millions on dubious purchases that "seemed to be justified" by the unexpected prize they had won. The sunk cost fallacy is one of the consequences of mental accounting. For example, let's say you hurt your ankle on your first day at a sports centre for which you pay the membership fee. Clenching your teeth and continuing to do sports does not show that you are resistant to pain, but that you have succumbed to mental accounting. Because not attending the salon would have wiped out the membership cost as a loss.

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