

Appendix 2.1

Common Psychological Biases That Influence Investment Behaviour

1. Anchoring/reference points

This is the tendency to focus on some fact or information that might or might not be relevant for a decision. For example, most investors would use the price at which they bought a stock to be the reference point to judge how well or poorly the stock is performing.

2. Breakeven effect

This is the tendency to seek additional risk in an effort to fully recoup a loss even when the probability of such an event is low.

3. Confirmation bias/cognitive dissonance

This is the tendency to seek and overweigh information that confirms one's views while avoiding or underweighting what is contradictory. It is similar to cognitive dissonance where a person's beliefs are adjusted to justify past actions. Hence investors tend to overestimate the success of their investment decisions in the past.

4. Disposition effect

This is the tendency to sell winners too early and losers too late. Locking in a gain creates a feeling of joy and removes the possibility of the stock becoming a loss. On the other hand, realising a loss leads to feelings of pain and removes the possibility of the stock recovering.

5. Endowment Effect

This is the tendency to demand much more to sell an object than be willing to pay to buy it. This results in investors being emotionally attached to an asset and reluctant to sell even if it is in their best interest.

6. Familiarity bias

This is the tendency to favour things that one knows over things that one does not know. It explains the tendency of investors to prefer buying stocks in domestic companies rather than overseas companies.

7. Herding

This is the tendency to ignore one's own judgement and to follow the actions of others. Herding perpetuates the upward and downward momentum of market prices, and explains the occurrence of market bubbles and crashes.

8. House money effect

This is the tendency to take more risk following monetary gains. The expression "playing with the house's money" refers to gamblers who do not consider winnings to be their own and hence are more willing to risk this money.

9. Loss aversion

This is the tendency to prefer avoiding losses to acquiring gains. Psychologically, the pain that comes with a loss is stronger than the pleasure that comes with an equal gain. Under the prospect theory framework, investors are generally more conservative with gains and more reckless with losses than they should be.

10. Mental accounting

This is the tendency to separate money into separate accounts based on criteria like where the money comes from, how it is to be spent or size of the transaction. One example is how people view bonuses. While extra money left over from regular income is placed into savings, people often spend bonus money more frivolously.

11. Overconfidence

This is the tendency to be overconfident of one's investment abilities. The two factors that contribute to overconfidence are the illusion of knowledge and the illusion of control. People tend to stay overconfident because they attribute success to skill and blame failure on other external factors. Overconfidence cause investors to trade too much and take on too much risk.

12. Representativeness bias

This is the tendency to make decisions based on stereotypes. For example, investors tend to confuse 'good companies' with 'good investments'. Few companies can sustain high growth rates achieved in the past. Over time good companies tend to become overpriced, causing the stock price to fall when investors readjust their expectations.

13. Snake-bite effect

This is the tendency to shun investment opportunities in securities where the investor had previously lost significant amounts of money, even when those securities offer potential for strong positive returns.

14. Status quo bias

This is the tendency to do nothing when faced with choices. When investors are faced with many investment options, the task of making a decision can be overwhelming. Some investors choose to avoid making a decision and hold on to the status quo.

15. Streak bias

This is the tendency to infer that a series of chance events would determine the outcome of a subsequent event. Investor behaviour resulting from this bias is the gambler's fallacy and the hot hand effect. The gambler's fallacy assumes that a streak would be corrected in the short-term, i.e. that a run of heads-up in a series of coin tosses should result in a tails-up in the next coin toss. The hot hand effect, on the other hand, assumes that the winning streak would continue, and is a common observation in sporting events.

16. Sunk cost effect

This is the tendency to persist with an endeavour once an investment in money, time and effort has been made. It explains why people hold on to bad investments even to the point of spending more money in the future in an attempt to recoup losses.

Appendix 3.1

Classification of Investor Risk Tolerance

1. Very conservative

The risk of investments would be very low, and the investor would be prepared to accept lower returns so long as the initial investment or capital was protected. The investor would also be aware that the potential for growth of his/her investment portfolio would be small, and that in the long term the negative effects of inflation might erode the cash value of the assets.

The portfolio of a very conservative investor might typically consist of only cash assets.

2. Conservative

The investor would be looking for returns on investments that would be higher than demand deposits, but the risk would still be low. The investment objective would be to protect the wealth that the investor had accumulated. However, the investor might be prepared to consider investments with some risk in order to seek some growth potential.

The portfolio of a conservative investor might consist of less aggressive or low growth investments.

3. Moderate

The investor would be looking for a balanced portfolio that would work towards medium and long-term financial goals. Calculated risks would be acceptable if the investments had the potential for good returns. The investor would be aware that the value of the investments could fall or rise in value, and would accept that he/she might get back less than the initial investment.

The portfolio of a moderate investor might consist of a wide variety of assets, where the risk would be reduced through diversification over various sectors in the marketplace.

4. Aggressive

The investor would be prepared to accept higher volatility and moderate risks. The primary objective would be to seek higher returns in order to accumulate wealth over the medium to long term. The investor would be aware that this investment strategy might increase the risk of large fluctuations in the value of his/her investments with the possibility of losing some or all of the capital.

The portfolio of an aggressive investor might consist of a narrower range of asset classes that were more aggressive in nature.

5. Very aggressive

The investor would be willing to accept a very high level of risk to pursue potentially higher long-term returns. The investor would also be willing to accept sharp day-to-day fluctuations in the value of his/her investments and the risk of

losing some or all of the capital. Security of capital would be secondary to the potential for wealth accumulation.

The portfolio of a very aggressive investor might consist of high risk and volatile assets like small-cap stocks, currencies and derivative funds.

Appendix 3.2

Are You Led by Your Emotions?

Traditional finance assumes that people are rational, makes decisions that maximise utility, and where the law of one price holds.

However, studies have shown that people are frequently irrational or just quasi-rational, and are repeatedly inconsistent in their money-related decisions.

The following is a brief theoretical explanation of the choice of responses for each of the questions in the survey questionnaire.

Question 1

Suppose you have RM20,000. When presented with the following options, which would you choose?

- (a) A 100% chance to win RM5,000
- (b) A 50% chance to win RM10,000 and a 50% chance to win nothing

Question 2

Now, suppose you have RM30,000. When presented with the following options, which would you choose?

- (a) A 100% chance to lose RM5,000
- (b) A 50% chance to lose RM10,000 and a 50% chance to lose nothing

The “emotional” investor would be likely to choose (a) for question 1 and (b) for question 2. They would view the two scenarios as separate and different, where decisions would be taken by considering only the gains and losses of each scenario individually. In question 1, an individual’s predisposition to avoid loss implies a preference for a sure gain to a gamble of the same expected value. However, in question 2, when faced with a sure loss, the chance to lose nothing induces a preference for the gamble.

On the other hand, the rational investor would treat the two decision scenarios as identical, because they are identical when formulated in terms of state of wealth. In both scenarios, the respondent has a choice between RM25,000 richer than he is today or taking a gamble in which he could end up richer by RM20,000 or by RM30,000 with equal probabilities. A rational investor is concerned about the more important goal of maximising the utility of wealth, and not the gains or losses along the way. Hence, he would choose either the gamble or the sure thing in both questions 1 and 2, instead of flipping preferences.

Question 3

You have just won RM1,000. Now choose between:

- (a) A 50% chance to gain RM200 and a 50% chance to lose RM200
- (b) No further gain or loss

Question 4

You have just lost RM1,000. Now choose between:

- (a) A 50% chance to gain RM200 and a 50% chance to lose RM200
- (b) No further gain or loss

Question 5

You have just lost RM1,000. Now choose between:

- (a) A 30% chance to gain RM1,000 and a 70% chance to gain nothing.
- (b) A sure gain of RM300.

The “emotional” investor would be likely to choose (a) for question 3 and (b) for question 4 and (a) for question 5. In question 3, behavioural finance theory suggests that a prior gain can stimulate risk seeking in a person. The gain is put into a separate mental account and would not be viewed the same as one’s “own money”. The person then has different risk preferences for the money in each account. This is known as the house money effect where people are prone to take more risk when they have just experienced a gain.

Questions 4 and 5 seek to show that prior losses do not stimulate risk seeking unless the gamble offers a chance to break even. The pain experienced from an initial loss would discourage a person from accepting a gamble that might incur a further loss and hence more pain. However, an opportunity to get back to the original reference or break-even point would change a person’s risk-seeking behaviour, i.e. they would jump at the chance to make up their losses and increase their risk seeking. In other words, when prior losses are present, gambles that offer the prospect of changing the sign of the status of the current account will be treated differently from those that do not.

The decision of the rational investor, on the other hand, would not be affected by a prior outcome. Gains or losses that may have been experienced in the past, but that are not expected to recur in the future, should not form part of the decision-making process. Prior outcomes of investments are sunk, are irrelevant, and should not influence one’s risk-taking behaviour.

Question 6

You have bought a ticket to a play that you have waited for a long time to see. At the theatre you realise that you have lost your ticket, which cost RM150. Do you spend another RM150 to see the play?

- (a) Yes
- (b) No

Question 7

You are going to a play that you have waited for a long time to see, but you have not bought your ticket, which costs RM150. At the theatre you realise that you have lost RM150 in cash. If you still have enough money, do you buy a ticket to see the play?

- (a) Yes
- (b) No

Research suggests that the “emotional” investor would not buy another ticket to the play if they had lost a previously purchased ticket, but would if they had lost RM150 in cash. Here, both scenarios offer the same outcome, i.e. total out-of-pocket cost of RM300 for a product valued at RM150.

The difference in response reflects the concept of mental accounting. This is the tendency to value some ringgit less than others based on where the money comes from (salary vs bonus), how it is spent (down payment vs vacation) or the size of the transaction.

For the “emotional” investor, the first ticket scenario equals a total play cost of RM300, i.e., two tickets at RM150 each; but would separate RM150 in lost cash and the RM150 ticket into two independent mental accounts.

Question 8

Investor A owns 100 shares of a stock, which he paid RM10 per share. Investor B also owns 100 shares of the same stock for which he paid RM20 per share. The value of the stock was RM16 per share yesterday, and today it dropped to RM14 per share. Who in your view is more upset?

- (a) Investor A
- (b) Investor B

The “emotional” investor would indicate that investor B would be more upset than investor A. The reason for this intuition is that investor A will probably treat the bad news as a reduction in a gain, while B will experience the same news as an increased loss. The reference point of “value” for investors A and B in this scenario is the purchase price per share, i.e. RM10 and RM20 respectively.

The rational investor would view that both are equally upset, as the reference point of “value” would be RM16 for the RM2 drop in share price.

Question 9

You invested RM200,000 in stocks A and B where you paid:

- RM8 per share for stock A; and
- RM15 per share for stock B.

After 1 year, your initial investment increased in value to RM230,000 where the value of:

- stock A increased to RM15 per share; and
- stock B decreased to RM10 per share.

You have no information to evaluate the future performance of either stock and both are equally susceptible to changes in the economic outlook. If you need to pay for an expense of RM30,000 from your investment portfolio, how would you choose to pay for that expense?

- (a) Sell RM30,000 of stock A
- (b) Sell RM21,000 of stock A and RM9,000 of stock B
- (c) Sell RM9,000 of stock A and RM21,000 of stock B
- (d) Sell RM30,000 of stock B

This is an example of the disposition effect, which is the tendency of investors to sell stocks whose price is increasing, while keeping stocks that have dropped in value.

Behavioural finance theory states that investors feel the pain that comes with a loss more strongly than the pleasure that comes with an equal gain. Hence, investors tend to hold on to their paper losses until their investment at least break-even. Selling a stock at a loss would make the loss “final” and an admission you made a mistake, and therefore bring about the feeling of pain.

Question 10

Your family has a 5-acre parcel of land in a rural area. This parcel of land has been in your family for four generations. You are contacted by a real estate agent who wants to know if you are interested in selling the whole 5 acres for RM200,000 or any significant portion of the parcel for RM40,000 per acre. The agent tells you that this is the current market price.

What would be the lowest price you would accept to sell the land?
RM _____ per acre

Question 11

You have RM200,000 and is thinking about owning some rural property. A real estate agent contacts you to say there is a 5-acre parcel of land in a rural area available for sale, and that the current market price is around RM40,000 per acre.

What would be the highest price you would offer to buy the land?
RM _____ per acre

The rational investor would value the said piece of land the same in both question 10 and question 11. However, a respondent who puts a higher price in Question 10 compared to question 11, exhibit behaviour that is consistent with the endowment effect. This is the tendency of people to place a higher value on objects they own relative to objects they do not.

Once a person owns something, the idea of giving it up becomes a potential loss, hence evoking the feeling of pain. Therefore, when setting the sale price, the person is likely to overvalue the item in order to offset this perceived loss. In addition to loss aversion, the endowment effect can also be linked to the status quo bias. In this case, where the preference is to do nothing or maintain one's current position, the resistance to change could be overcome by setting a higher selling price.

Question 12

You have an investment portfolio that consists of small-cap stocks of moderate risk. You recently inherited an investment portfolio that consists of stocks that are of low risk. What would you do with your newly inherited portfolio of stocks?

- (a) Do nothing
- (b) Sell the stocks in the portfolio to buy stocks of your choice

The “emotional” investor who chose (a) exhibits behaviour that is consistent with the status quo bias. This is the tendency to do nothing and keep the investments they had received rather than exchange it for other types of investments.

Studies have found that delays in making a decision to act or a decision not to act increases when many attractive options exist. When an investor is faced with many investment choices, the task of making a decision can be daunting. As a result, some investors choose to avoid making a decision and do nothing.

The status quo bias can lead investors to procrastinate when required to make an investment decision. It results in investor behaviour that very often focuses on the drawbacks rather than on the benefits of change, even when the positives outweigh the negatives.

Question 13

You have been trying to sell your semi-detached house. Your asking price is RM500,000 and have rejected offers of RM450,000. After a 6-month period, you receive a new offer of RM430,000 for your house. The real estate agent tells you that this is now the market price.

- (a) Accept the offer
- (b) Reject the offer

The “emotional” investor would reject the offer because the reference point of “value” would be RM450,000, which was the last offer he received. The fact that the housing market could be softening would not be taken into consideration, as he feels he should hang on to the house and wait for the price to go back up.

Appendix 3.3

Questionnaire – Study on Financial Decision-Making Behaviour

Dear Sir/Madam

I am a student from Universiti Malaya and am writing my doctoral thesis in economics. My research topic deals with factors affecting the financial decision-making behaviour of private investors, as well as institutional or professional investors.

The questionnaire consists of 13 questions that ask you to assume or imagine that you are in a certain situation. The objective of each question is to gain a picture of what you would do in such circumstances regardless of whether you have ever been in them or ever likely to be in them. For each question please answer or chose the best option given based on the information given. There is no right or wrong answer. The success of my doctoral research is highly dependent upon your honest response to each question.

The data gathered would be used only for the purpose of my doctoral thesis, and would be kept confidential. Your anonymity is assured.

The questionnaire should take about 10-15 minutes to complete. Please email the completed questionnaire to survey.chak@gmail.com, and I will send you a brief that would explain some aspects of investor psychology behind each question.

Question 1

Suppose you have RM20,000. When presented with the following options, which would you choose?

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Question 7

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- stock A increased to RM15 per share, and
- stock B decreased to RM10 per share.

You have no information to evaluate the future performance of either stock and both are equally susceptible to changes in the economic outlook. If you need to pay for an expense of RM30,000 from your investment portfolio, which of the following options would you choose to pay for that expense?

- (a) Sell RM30,000 of stock A
- (b) Sell RM21,000 of stock A and RM9,000 of stock B
- (c) Sell RM9,000 of stock A and RM21,000 of stock B
- (d) Sell RM30,000 of stock B

Question 10

Your family has a 5-acre parcel of land in a rural area. This parcel of land has been in your family for four generations. You are contacted by your real estate agent who wants to know if you are interest in selling the whole 5 acres for RM200,000 or any significant portion of the parcel for RM40,000 per acre. The agent tells you that this is the current market price.

What would be the lowest price you would accept to sell the land? RM_____ per acre

Question 11

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What would be the highest price you would offer to buy the land? RM_____ per acre

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You have an investment portfolio that consists of small-cap stocks of moderate risk. You recently inherited an investment portfolio that consists of stocks that are of low risk. What would you do with your newly inherited portfolio of stocks?

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- (a) Accept the offer
- (b) Reject the offer

Respondent information

- (i) Age _____ years
- (ii) Sex _____ male _____ female
- (iii) Highest level of education _____
_____ school certificate
_____ under-graduate degree
_____ post-graduate degree
_____ professional qualification
- (iv) Race _____ Bumiputra
(if you are Malaysian) _____ Chinese
_____ Indian
_____ Other
_____ not a Malaysian
- (v) What is your total monthly household income? _____ <RM5,000
_____ RM5,000 – 9,999
_____ RM10,000 – 19,999
_____ RM20,000 – 29,999
_____ >RM30,000
- (vi) Are you an investment professional? _____ dealer/trader
_____ remisier
_____ fund manager
_____ investment adviser
_____ financial analyst
_____ not an investment professional

The following questions are for NON_INVESTMENT PROFESSIONALS

- (vii) Years of investing experience _____ years
- (viii) What is your estimated _____ <RM250
networth _____ RM250-499
(RM'000) _____ RM500-999
_____ RM1,000-1,999
_____ >RM2,000

The following questions are for INVESTMENT PROFESSIONALS

- (vii) Years of investing/dealing _____ years
experience
- (viii) What is the size of the _____ <RM100
portfolio/book under your _____ RM100-399
management? _____ RM400-699
(RM million) _____ RM700-999
_____ >RM1,000
_____ not applicable

Thank you for participating in this survey.

To email the completed questionnaire back to me, please do the following:

On the **File** menu, point to **Send To**, and then click **Mail Recipient (as Attachment)**

In the **To** box, enter survey.chak@gmail.com

Click **Send**

Appendix 4.1

Results from Survey Questionnaire – Behavioural Biases Which Were Determined

From the Outcome of Two Decision Scenarios

The percentages in each cell 2x2 cell were based on the total number of cases

Framing Effect

		Negative Framing		Total
		Rational	Irrational	
Positive Framing	Rational	26 9.2%	44 15.5%	70 24.7%
	Irrational	67 23.7%	146 51.6%	213 75.3%
	Total	93 32.9%	190 67.1%	283 100%

Mental Accounting Effect

		Mental Account (Q7)		Total
		Rational	Irrational	
Mental Account (Q6)	Rational	22 7.7%	208 73.2%	230 81.0%
	Irrational	37 13.0%	17 6.0%	54 19.0%
	Total	59 20.8%	225 79.2%	284 100%

Anchoring Effect

		Anchoring (Q13)		Total
		Rational	Irrational	
Anchoring (Q8)	Rational	14 5.0%	41 14.6%	55 19.6%
	Irrational	66 23.6%	159 56.8%	225 80.4%
	Total	80 28.6%	200 71.4%	280 100%

Status Quo Effect

		Status Quo (Q12)		Total
		Rational	Irrational	
Endowment Effect	Rational	40 14.3%	40 14.3%	80 28.7%
	Irrational	90 32.3%	109 39.1%	199 71.3%
	Total	130 46.6%	149 53.4%	279 100%