

Anchoring and Adjustment Heuristic as a Mediator between Neurofinance and Financial Decision-Making among SMEs: Evidence from a Field Experiment

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DOI: <https://doi.org/10.47772/IJRISS.2026.100700016>

Received: 04 July 2026; Accepted: 09 July 2026; Published: 22 July 2026

ABSTRACT

In the realm of financial decision-making among small and medium-sized enterprises (SMEs), irrational behaviour has increasingly been recognised as a critical factor influencing entrepreneurial outcomes. This study examines whether the anchoring and adjustment heuristic mediates the relationship between emotional states and financial decision-making, with particular attention to the different effects of positive and negative emotions. A true experimental field design was employed involving 42 SME entrepreneurs in Kelantan, Malaysia, who were randomly assigned to positive, negative, and control groups. Emotional states were manipulated using pre-tested video clips, after which participants completed pre- and post-test questionnaires measuring emotions, financial decision-making, and heuristic behaviour. Data were analysed using SPSS PROCESS Macro Version 4.3.1, with general linear regression applied to estimate direct and indirect effects across multi-categorical emotional conditions. The findings indicate that the anchoring and adjustment heuristic significantly mediates the relationship between emotions and financial decision-making. Positive emotions were found to improve financial decision outcomes through the mediating pathway of anchoring and adjustment, whereas negative emotions did not produce a significant effect. These results suggest that positive emotional states may activate cognitive shortcuts that help entrepreneurs respond more effectively to initial financial information and make more adaptive judgments. This study contributes to behavioural finance and neurofinance by demonstrating how emotions influence heuristic mechanisms underlying SME financial decision-making. It also highlights the importance of emotional awareness and regulation in strengthening financial judgment among entrepreneurs. Integrating psychological and neurofinance perspectives into SME financial practices may help reduce decision errors, improve investment choices, and support sustainable business performance, particularly in uncertain and competitive business environments.

Keywords: Anchoring and Adjustment, Emotion, Financial Decision-Making, Heuristic, SMEs

INTRODUCTION

Good or bad financial decision-making is highly tied to irrational behaviour. Traditional finance, which assumes that people are rational actors, has struggled to explain decision-making in complicated and uncertain situations (De Bondt et al., 2015). This assumption has been challenged by behavioural finance, which arose from Kahneman and Tversky's (1974) seminal work indicating that people frequently depend on cognitive shortcuts and emotional cues when making risky and uncertain decisions. Recent research has confirmed that heuristics—mental shortcuts used to facilitate decision-making—play an important role in shaping financial behaviour. Piotrowski and Bünnings (2022) discovered that heuristics had a considerable impact on investment decisions in real-world financial advice situations, influencing product selection as well as purchase likelihood. Similarly, Das and Mukherjee (2023) identified availability, representativeness, and mental accounting biases as persistent factors that distort investor judgment and lead to suboptimal outcomes. Frederiks et al. (2015) emphasised that

eliminating heuristic-driven biases necessitates more effortful information processing. This viewpoint is supported by recent research by Angel and Pushpa (2025), who claim that heuristics lead to risk misjudgment and market anomalies, particularly among individual investors. Furthermore, behavioural biases such as overconfidence, anchoring, and herd behaviour remain experimentally connected to irrational investing decisions (Khare & Kapoor, 2023). The function of asymmetric information is still crucial. Investors frequently make judgements based on insufficient or distorted facts, which exacerbates the impact of cognitive biases (Agarwal & Singh, 2023). In this environment, heuristics influence decision-making as well as emotional and social aspects, resulting in complicated behavioural patterns.

Building on prior comments by Nigam et al. (2018) and Artinger et al. (2014), recent research advocates for investigating the mediating and moderating impacts of heuristics in a variety of domains. Rauwerda and De Graaf (2021) investigated how financial advisors employ satisficing and recognition heuristics in Small and Medium Entrepreneurs (SMEs) financing, discovering that prior experience and client contact influence decision rules. Jain (2021) used bibliometric research to further map behavioural biases, emphasising the importance of integrated models that account for heuristic dynamics across contexts. However, despite this growing body of work, little is known about how heuristics interact with emotional states in shaping financial decision-making, particularly among SMEs. Most existing studies focus on investors or financial advisors, overlooking entrepreneurs who regularly face uncertainty and resource constraints. Moreover, while anchoring has been studied as a direct bias, its potential role as a mediating mechanism between emotions (neuro function) and financial decision-making remains underexplored. Accordingly, this study investigates whether the anchoring and adjustment heuristic mediates the relationship between emotional states (positive, negative, and neutral) and financial decision-making among SMEs. Specifically, it explores whether positive and negative emotions, through anchoring, differentially influence financial choices.

LITERATURE REVIEW

In both developed and developing countries, Small and Medium-sized Enterprises (SMEs) are recognized as key drivers of economic growth, contributing significantly to GDP, employment, and innovation (Molosiwa & Holland, 2025; Organisation for Economic Co-operation and Development [OECD], 2025). However, SMEs continue to face high failure rates, particularly in their early years, with poor financial decision-making cited as a major cause (González-Prida et al., 2025; Raby & Chowdhury, 2025). Recent studies identify poor strategic planning, limited business knowledge, and inadequate financial literacy as primary drivers of financial mismanagement (Abdul Rahman et al., 2025; Weerasekara & Bhanugopan, 2023).

A. Financial Decision Making and SMEs

Mostly studies on financial decision-making focus on three fundamental elements, which are borrowing, spending, and investing. These elements are essential for understanding liability, personal, and corporate planning. Traditionally, large firms rely on boards of directors and fund managers to guide investments, yet these actors are not immune to behavioural biases such as overconfidence, risk-taking, and maximization tendencies (Mohamed & Mahfuz, 2012). Recent evidence demonstrates these effects. Chandna and Sharma (2024) found that even financial literacy was high, overconfidence and anchoring still significantly influence the choices of institutional investors' portfolio. In 2016, Nyamute proved that even having a good literacy, irrational investment behaviour may not always be eliminated. According to Talreja et al., (2023), SMEs and entrepreneurs often operate without formal governance frameworks or processes, making them more vulnerable to cognitive and emotional biases including herd behavior, loss aversion, and mental accounting as compared to large organizations. To overcome this issue, a framework for identifying 24 behavioral biases that impact individual investors was proposed by Dola et al. (2024). This framework highlights the importance of accounting for psychological variables in financial models. Badola et al. (2024) further demonstrated the importance of psychological viewpoints by exposing 24 behavioral biases affecting individuals. Currently, Angel and Pushpa (2025) emphasized the critical role of heuristics in SME investment decisions under uncertainty.

In terms of financial choices, normally consumers often purchase goods and services for their personal use, whereas business owner mostly invests in the production or secondary market of commodities. The problem

arises when business owners use corporate funds for personal expenses or informal spending. Due to this issue, Rodriguez et al. (2024) suggest that targeted education can reduce impulsive and informal spending. In their research, they found that financial literacy significantly mediates the spending behavior of Gen Z entrepreneurs. Yeo et al. (2024) proposed a theory of financial planning behavior, which states that financial cognition and mental accounting play a significant role in influencing both individual and corporate spending decisions. In addition, Damong and Perez (2024) found that men are more impulsive and have a higher risk tolerance, while women are more conservative and price sensitive. Recent studies by Elliyana et al. (2024) and Okello et al. (2025) highlight the importance of debt management literacy and financial self-efficacy in improving SMEs' loan repayment habits. They found that lifestyle choices and religious beliefs have a significant influence on borrowing decisions and debt sustainability. An overdependence on credit cards may lead to financial trouble (Wilson, 2015). Furthermore, Jansen et al. (2023) introduced the concept of family capital in private businesses, showing that family businesses prioritize internal financing and debt above external stock to preserve control and socioemotional wealth.

B. Irrational Behaviour

Previously, most research focused on investor-centric decision-making and rational financial behavior, such as the study done by Agarwal and Mazumder (2013) and Altman (2017). However, currently, researchers more interested in examining the behavioral and irrational aspects of entrepreneurial financial decisions. One of it is a study done by González-Prida et al. (2025) which emphasize that financial literacy significantly enhances micro-entrepreneurs' capacity for logical decision-making, that in turn enhances resilience and sustainability (Greengage, 2025), while Molosiwa and Holland (2025) argue that financial literacy is a form of human capital that improves SMEs' ability to manage debt, make budgets, and use fintech.

According to Wong et al. (2018), business owners continue to prioritize their own aims over the goals of their company when making financial decisions. Recent behavioral finance research supports this further by showing that biases including overconfidence, home bias, and risk preference continue to influence SME financing decisions, especially for informal and ethnic company groups (CapBay, 2025; Benayad & Aasri, 2023). Investigating financial decision-making in SMEs is necessary, as indicated by the alarming survival statistics. Only 66.1% of Malaysian businesses founded in 2017 survived for five years, with certain industries and geographical areas performing worse than this average (González-Prida et al., 2025). Cash flow issues and inadequate financial planning are still common among Malaysian SMEs, despite recent surveys indicating improved payment behaviour and resilience (Experian Information Services Malaysia, 2025). Furthermore, flexible finance tactics have been essential to the survival of SMEs, particularly in times of crisis like the COVID-19 pandemic. Raby and Chowdhury (2025) found that preemptive financial actions, such as renegotiating supply costs and securing finance, significantly increased revenue growth after the crisis. Even while the field of research on financial decision-making in entrepreneurship is expanding, it is still in the early stages, particularly in regard to decision biases and irrational behavior. It is becoming increasingly apparent that behavioral insights and targeted financial literacy interventions are needed to improve SME sustainability, especially for young and unorganized entrepreneurs.

A fundamental idea in behavioral decision-making, especially in uncertain situations, is the anchoring and adjustment heuristic. It was first shown by Tversky and Kahneman (1974) that people frequently make inadequate changes after relying primarily on an initial reference point, or the anchor, which results in erroneous conclusions. It is supported by several researchers in areas including price, negotiations, and social perception, such as Epley and Gilovich (2006) and Holm et al. (2024). As an illustration, consider the primacy effect, which holds that initial impressions disproportionately influence subsequent judgments and that early information is given more weight than later inputs, regardless of quality. (Stewart et al., 2004; Myers, 2023). This heuristic is an example of a cognitive shortcut in human reasoning that not sufficiently robust, where people quickly make initial estimations based on information that is readily available and then modify them (Epley & Gilovich, 2001; Mussweiler & Strack, 1999). The anchoring effect has been noted in a variety of settings, including financial forecasting, consumer behavior, and court sentences (Englich & Mussweiler, 2002; Samahita et al., 2024). Furthermore, recent experimental data indicate that anchoring affects the entire distribution of subjective beliefs (Holm et al., 2024).

C. Neurofinance

Neurofinance is a branch of behavioral finance that examines how the human brain processes information and emotions to influence financial decision-making. It integrates economics, psychology, and neuroscience in understanding the brain mechanisms behind risk perception, reward evaluation, and uncertain decision-making. Recent studies found that emotion often drives financial behaviour rather than reason, especially in circumstances involving high risks or uncertainty. Emotional management is essential for long-term financial outcomes, as found by Manisha and Murthy (2025). Their study indicates that those with good emotional control are more likely to make rational borrowing and investment decisions compared to those with less emotional control, who are more prone to participate in impulsive behaviours like excessive borrowing or speculative trading.

Agarwal et al. (2023) concluded that when making financial decisions, people's prefrontal cortex and amygdala are activated, especially when they are faced with risk or uncertainty. Lan (2024) provides a detailed examination of both positive and negative emotions, showing that although good emotions promote confidence, optimism, and inventiveness in financial decisions, they also commonly lead to risk-taking and overvaluation. Conversely, negative feelings like regret and worry promote caution, risk aversion, and conservative money management.

Zaleskiewicz and Traczyk (2020) concluded that incidental emotions and essential emotions have a major impact on financial decisions, where incidental emotions are unrelated but have an impact, while essential emotions are directly related to the financial decision. In addition, they also found that happy emotions enhance strategic planning and self-evaluation, but negative emotions cause avoidance and pessimism. Singh and Dhama (2024) identify two primary emotional biases that impact investor sentiment and market volatility: fear and overconfidence in their study on emotional finance in investment scenarios. Singh and Dhama emphasize the importance of emotional intelligence in financial education and counselling. In the case of borrowing decisions, Chaurasia & Murari (2024) found a substantial association between emotional intelligence and effective debt management. Particularly, when feeling good, people with high emotional intelligence make better decisions about whether a loan is suitable and manage repayment patterns.

Traditionally, in the interdisciplinary field of neurofinance, which integrates economics, neurology, and psychology, laboratory-based research is commonly applied to investigate the brain foundations of financial decision-making. Neuroimaging techniques such as electroencephalograms (EEG), positron emission tomography (PET), and functional magnetic resonance imaging (fMRI) are commonly used in this research to capture brain activity during financial tasks (Dorow et al., 2018; Frydman & Camerer, 2016). Recent studies continue to highlight the importance of EEG in real-time recording of affective and cognitive responses. Malhan and Vij (2024) emphasized that EEG offers immediate error detection and overcomes the limitations of self-reported assessments, even though most of the research is still restricted to simulated lab environments. They discovered important trends in risky decision-making and portfolio strategies in their comprehensive evaluation of EEG-based neurofinance studies. However, some scholars become more aware of the limitations of laboratory testing, particularly in relation to external validity and ecological realism. Baechler and Germain (2023) argue that while lab conditions offer control, they often fail to replicate the complexity of real-world financial circumstances, especially when student samples are used. This concern is in line with Bryman and Bell (2015) and Pelaelo and Swami (2014), who highlighted that student participation would not accurately represent broader investor populations.

Nowadays, researchers use field investigations and computer methods to fill the gaps. In addition to support sentiment-driven field research that takes emotional biases and naturalistic decision-making into account, Vartei (2023) implies that neurofinance should go beyond neuroimaging to incorporate real-world behavioral data. Similarly, Bormpotsis et al. (2025) propose a neuroscience-informed AI framework that uses bio-inspired models to decode financial behavior, providing a scalable alternative to traditional lab setups. Agarwal et al. (2023) highlight the role of the amygdala and prefrontal cortex in financial decision-making, although they caution that lab-based imaging may oversimplify the intricate connection between emotion and cognition. This supports the claim made by Payzan-LeNestour (2017) that computer modeling and naturalistic experimentation should be the next developments in neurofinance. With few studies specifically including neuroscience, the

neurofinance field experimentation is still in its infancy despite its potential. Although behavioral finance has embraced field research (e.g., Seshan & Yang, 2014; Bursztyn et al., 2014), using neural data in these settings is still rare. According to experts such as Srivastava et al. (2020), hybrid models that combine physiological variables and behavioural outcomes are essential for increasing realism and generalizability.

For the anchoring and adjustment, this heuristic is used when people make uncertain judgments by starting with a certain point of reference (anchor) and then adjusting it to a final decision. For example, once it has been created, the first impression is hard to change, even if the information obtained later is of higher quality than before. Early information estimates are further known, slowly and deliberately dealt with, and moved in a certain direction because of the strong potential to anchor our judgment. Zhang et al. (2018) discussed low economic losses and lower compensation for emotional loss victims. They found that when a victim only suffers an emotional loss, people who make compensation decisions base compensation on the worth of the emotional loss. Previous studies have discovered that people tend to anchor their judgment of an uncertain quantity on an externally given value, and the adjustment is usually insufficient, although they can make some adjustments. In this research, the different emotions have been hypothesized to mediate the effect of anchoring and adjustment heuristic towards the elements of financial decision making.

Drawing on behavioural finance and neurofinance perspectives, this study proposes a framework (Figure 1) in which the anchoring and adjustment heuristic mediates the relationship between emotions and financial decision-making among SMEs. Behavioural finance highlights that individuals deviate from rational models due to reliance on cognitive shortcuts, while neurofinance emphasises the role of emotional states in shaping judgement under risk and uncertainty. Integrating these perspectives, the anchoring and adjustment heuristic is conceptualised as a cognitive mechanism through which emotions—whether positive or negative—exert their influence on financial behaviour. Specifically, entrepreneurs may anchor their decisions to initial reference points shaped by emotional cues, subsequently adjusting insufficiently, which leads to systematic biases in financial decisions. This framework, therefore, positions heuristics not merely as direct biases but as mediating processes that translate emotional states into financial outcomes, as shown in Figure 1.

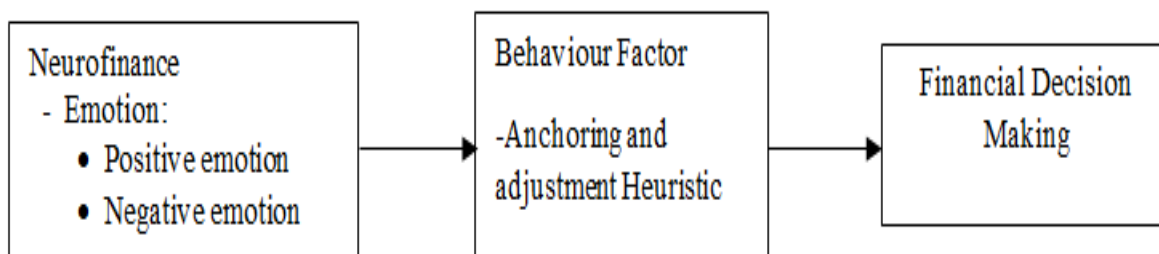


Figure 1: Theoretical Framework

Based on this framework, the study posits that the anchoring and adjustment heuristic plays a significant mediating role in translating emotional states into financial decision-making outcomes. More precisely, positive emotions are expected to enhance financial judgement through anchoring effects, while negative emotions may weaken decision quality or exert no significant influence. This theoretical reasoning guides the formulation of the study's hypotheses, which examine the mediating role of anchoring and adjustment in the relationship between different emotional states and financial decision-making among SMEs. Therefore, the hypotheses 1, 1a, and 1b have been hypothesized and expected as:

Hypothesis 1: The mediating effect of anchoring and adjustment heuristic significantly influences emotion and financial decision-making.

Hypothesis 1a: The mediating effect of anchoring and adjustment heuristic significantly influences the positive emotion and financial decision making.

Hypothesis 1b: The mediating effect of anchoring and adjustment heuristic significantly influences the negative emotion and financial decision-making.

METHODOLOGY

A causal framework is adopted in this study to examine whether emotions influence financial decision-making, with a particular focus on the mediating role of heuristic biases, specifically anchoring and adjustment. According to Hayes and Preacher (2014), a simple mediation model illustrates how an independent variable (emotion) can affect a dependent variable (financial decision-making) indirectly through a mediator (heuristic bias) (refer to Figure 1). This structure allows for both direct and indirect pathways, where emotion may influence financial decisions directly or via anchoring effects. It means that emotion is postulated to affect the anchoring and adjustment heuristic, and this effect then propagates causally to financial decision-making. On the other hand, there is a possibility that emotion can also affect financial decision-making directly, and emotion can indirectly affect financial decision-making as mediated by the anchoring and adjustment heuristic. It also identifies the control effect of the survey questionnaire, consisting of the demographic profile, such as the age of the business, education level, and level of financial knowledge.

This study employs a true experimental design in a non-contrived field setting, consistent with Sekaran and Bougie's (2016) definition of field experiments. The manipulation of emotional states (positive and negative) aligns with Shah et al. (2024), who used emotion-based treatments to assess heuristic bias and investment behaviour in real-world settings. The inclusion of pre-test and post-test measures across experimental and control groups ensured internal validity and supported causal inference. The researcher intervened in natural settings by manipulating the independent variable—emotion—through experimental treatments. These manipulations were applied only to the experimental groups, while the control group received no treatment. The experiment was designed with both experimental and control groups, with data collected before and after treatment to measure changes in participants' emotional states and decision-making. The study focused on financial decision-making with consideration of neuro-function. The study population comprised SMEs in Kelantan, with 42 entrepreneurs from the manufacturing, services, and other sectors selected as the experimental units. While the sample size of 42 SME entrepreneurs is relatively small, it exceeds the commonly accepted minimum threshold of 30 participants for experimental behavioral research and is therefore considered adequate to satisfy the normality assumption underlying parametric statistical analyses (Roscoe, 1975; Hair et al., 2018). The field experiment was conducted in a single day (9.00 a.m. to 4.00 p.m.) at Pusat Usahawan MARA (PUSMA), Kota Bharu, Kelantan, and was divided into four sessions to accommodate all participants.

The independent variable was emotion, operationalised as two categories of emotional states: positive (happy, excitement) and negative (sad, fear). The dependent variable was financial decision-making, while anchoring and adjustment heuristic served as the mediating behavioural factor. A one-factor experimental design was used to compare the effects of positive and negative emotions against a control group. Participants were divided into two treatment groups and one control group. Those in the treatment groups were randomly assigned to watch video clips designed to induce either positive or negative emotions, whereas the control group participated in an emotion-neutral session facilitated by the researcher. This design enabled the investigation of how emotional states influence rationality in financial decision-making. Following Dunn and Hoegg (2014), the positive emotion treatment consisted of four video clips that elicited happiness and excitement (drama, comedy, and documentary genres), while the negative emotion treatment consisted of four video clips eliciting sadness and fear (horror, drama, and thriller genres). Two video clips were selected for each targeted emotion to provide effective priming. All clips were pre-tested and validated to ensure they successfully induced the intended emotional states. Participants completed an emotion questionnaire before the experiment (pre-test) and immediately after the treatment (post-test) to measure emotional changes. A heuristic questionnaire (anchoring and adjustment bias) and a financial decision-making questionnaire were also filled out by them following therapy. Repeated surveys were rearranged to prevent memorization effects and reduce response bias (Yang, 2017). Each session covered the pre-test, treatment, and post-test procedures and lasted approximately sixty minutes.

Since this study focuses on SMEs' financial decision-making, entrepreneurs were selected as the unit of analysis because they actively participate in these processes. According to Muhammad et al. (2009), this approach circumvents the potential averaging effect that could occur if decisions were aggregated over multiple levels and provides a more genuine depiction of individual decision-making behaviour. This study's emphasis on

entrepreneurs enhances knowledge of how emotional states influence heuristics and rationality in financial decision-making. Finally, mediation analysis through general linear regression models as described by Hayes and Preacher (2014) was used in analysing the data. Direct and indirect effects of the multi-categorical independent variable of emotion (control, positive, and negative groups) were estimated. The analysis was done using SPSS PROCESS Macro Version 4.3.1 (PROCESS V4.3), created by Hayes (2023).

RESULTS

In this study, the anchoring and adjustment heuristic is examined as the mediating variable in the relationship between emotions and financial decision-making. The analysis distinguishes between positive and negative emotional states to evaluate their differential effects on financial decisions. As presented in Table 1, the results indicate a significant mediating effect of the anchoring and adjustment heuristic on the relationship between emotions and financial decision-making, with an F-value of 3.1967 and a p-value of 0.0342, which is less than the 5% significance level. These findings provide empirical support for the proposed mediation (Hypothesis 1).

However, the results reveal that at 5% significance level, only negative emotion gives a direct effect on financial decision making ($c'_1 = -0.9896$, p-value = 0.0165), reducing the quality of financial decision making by approximately 1.0%. At the same time, negative emotion also has an indirect effect ($a_1, b = 0.000$; CI: -0.7293, -0.0979) and does not change the financial decision-making through anchoring and adjustment heuristic as compared with the control group. Hence, the mediating role of the heuristic under negative emotion (Hypothesis 1b) is not supported. Conversely, does not show a significant direct effect ($c'_2 = -0.4826$, p=0.1844) on financial decision-making. Similarly, hypothesis 1a is also not supported because the indirect effect ($a_2, b = -0.0249$; CI: -0.4873, 0.0744) shows that positive emotion (compared with the control group) does not influence the financial decision-making through the anchoring and adjustment heuristic. We conclude that the emotion significantly affects the financial decision-making as partially mediated by anchoring and adjustment heuristic.

Table 1: Mediation Analysis Result: The Effect of Emotion on Financial Decision-Making through Anchoring and Adjustment Heuristic

Models	Coeff	MSE	t	p-value	LLCI	ULCI
Anchoring and adjustment						
F-value = 0.6518, p-value = 0.5267, R ² = 0.0349	5.2429	0.1716	30.5595	<0.0001	4.8958	5.5899
Constant	0.0000	0.2446	0.0000	1.0000	-0.4947	0.4947
D1 (a_1)	-0.2429	0.2444	-0.9937	0.3265	-0.7372	0.2515
D2 (a_2)						
Posttest FDM						
F-value = 3.1967, p-value = 0.0342, R ² = 0.1888						
Constant	4.8163	0.5317	9.0574	<0.0001	3.7398	5.892
D1 (Direct Effect) (c'_1)	-0.9896	0.1694	-2.5082	0.0165	-0.7680	-0.0820
D2 (Direct Effect) (c'_2)	-0.4826	0.1533	-1.3518	0.1844	-0.5176	0.1031

Anchoring & Adjustment (b)	0.1025	0.0955	1.0729	0.2901	-0.0909	0.2959
Mediation (through Anchoring & adjustment)	ab	BootSE	Bootstrapped CI			
D1 (Indirect Effect) (a ₁ ,b)	0.0000	0.1608	-.7293	-.0979		
D2 (Indirect Effect) (a ₂ ,b)	-0.0249	0.1442	-.4873	.0744		

Taken together, these findings indicate that emotions are significantly related to financial decision-making, but the anchoring and adjustment heuristic functions only as a partial mediator. This outcome aligns with the theoretical framework, which posits that emotional states influence decision outcomes both directly and indirectly through cognitive shortcuts. However, the evidence suggests that while emotions matter, the mediating effect of heuristics is more limited than anticipated. The nature of this partial mediation is illustrated in Figure 2 which provides a schematic representation of the mediation analysis results, showing how emotions influence financial decision-making both directly and indirectly through the anchoring and adjustment heuristic.

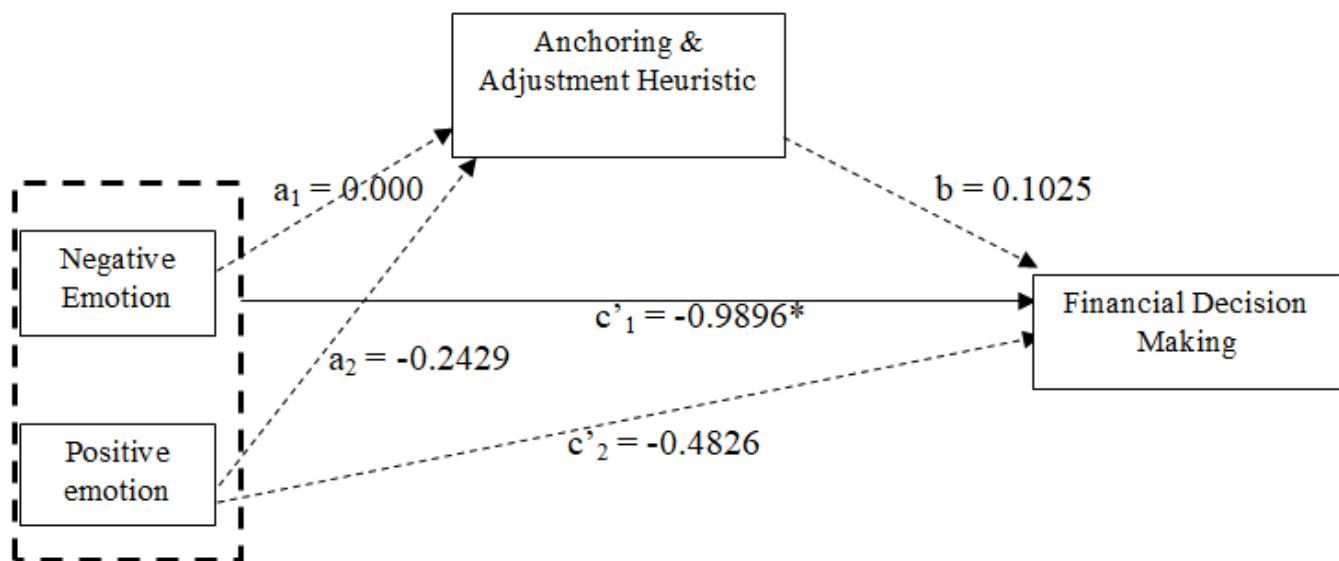


Figure 2: Anchoring & Adjustment Heuristic: Partial Mediation of Emotion on Financial Decision Making

CONCLUSION AND DISCUSSION

To address the research objective, mediation analysis was employed to examine whether the anchoring and adjustment heuristic mediates the relationship between emotion and financial decision-making among SMEs. The findings support the hypothesis, indicating that anchoring and adjustment heuristic exerts a partial mediating effect, consistent with the conceptual propositions of Artinger et al. (2014) and Nigam et al. (2018). Recent empirical work by Li (2024) highlights how anchoring and other heuristics distort investor judgment under emotional influence, especially in uncertain environments. Similarly, Koech (2020) found that the anchoring heuristic significantly predicts SME financial performance, with investment decisions acting as a mediator, reinforcing the indirect pathway from emotion to financial outcomes. Experimental studies by Ismail et al. (2022) and Rockwood and Hayes (2020) further validate that heuristic behavior can mediate emotional effects, even when direct paths (a-path and/or b-path) are statistically insignificant (refer to Table 1). This aligns with Hayes and Rockwood (2017), who emphasize that the significance of the indirect effect (ab) is sufficient to establish mediation, regardless of individual path coefficients (refer to Figure 2).

However, for the anchoring and adjustment heuristic, negative emotion does not give any changes to SMEs in financial decision-making indirectly. It designates that this heuristic continuously begins with fast approximations based on the preliminary information that related to human cognition (Gál et al., 2013). It indicates that the decision-making based on anchors is persistent. Gilbert (2002) discovered that to ensure the strong potential to anchor the judgments, initial information should be broadened meaningfully, cautiously, and purposefully handled and changed in a certain direction.

From the results, in relation to the working memory, the financial decision making that manages manipulation, recall, and information processing is the central executive function as “control centre” (Chai et al. 2018). The network distribution interacts with working memory and financial decision making with a common brain component, which is the prefrontal cortex (Murray et al., 2017). Concerning emotion and working memory, the short-term memory task received fast emotional words in memory processing (Garrison & Schmeichel, 2018). On the other hand, the emotions in working memory and executive control are regularly disconnected. This is because the positive emotion upgrades spatial and the negative emotion improves verbal working memory (Storbeck & Maswood, 2015). It indicates that the positive emotion upgrades the executive control, though negative emotion has a small impact. However, the negative emotion enhances visual working memory as compared to neutral and positive emotions (Xie & Zhang, 2016). That’s why the negative emotion has direct effect on financial decision making.

Furthermore, the brain components that involved in emotion are the middle temporal, insula, medial prefrontal cortex, frontal and cingulate brain components (Farrell et al., 2018). However, the left amygdala and the left anterior insula brain component were activated when people experienced negative emotions (Lindquist et al., 2016). Whereas, the nucleus accumbens (NAcc) originates the activation of the brain component when people experience positive emotions (Mateu et al., 2017). Thus, in this study, it can be suggested that when the entrepreneurs experience negative emotion, the left brain is activated. The left brain thinking is when people think fast, easily, and trust in instinct and mental shortcuts (heuristics). Whereas the positive emotion among the entrepreneurs leads to the right brain being activated. They are more thoughtful, rational, slower, and tougher in terms of effort in right-brain thinking. The left brain is more related to the reward system. The mediating effect of anchoring and adjustment heuristic does not give any different on negative emotion and financial decision making. It follows the anchoring and adjustment heuristic theory, where it is difficult for SMEs to change their decision from their first impression of the decision activities. Thus, the findings may add to the literature on psychological influence on financial decisions.

The findings of this research also provide practical implications for entrepreneurs, financial advisors, and policymakers. For the entrepreneurs, to avoid mistakes in financial decision making, the SMEs need to control their emotions, especially when they are in a negative emotion. As a decision maker, when it comes to money matters, the business owner has to consider just a little emotion. He / She needs to be more professionally think, not emotionally, and mentally shortcut in financial decision making to ensure the success of the business. It is important for those in five years business age survived their businesses and avoid business discontinuity. As the statistically showed that they are among the highest rates of business failures. Apart from that, these research findings also provide insight into financial advisors using the tested video clips and emotion questionnaire to know the clients’ (entrepreneurs) emotions and characteristics before advising them on any new financial products or services. This is because the results showed that the negative emotion leads to poor decision making either in investment, spending, or borrowing decisions. It can be said that the SMEs are more believed on their relatives or friends when it comes to investment decisions rather than professional advisors. It sometimes causes them to be involved in illegal investment.

Finally, the policy maker that involved in entrepreneurship activities need to be aware of the existing policy, especially in financial support. This is because for the business start-up, entrepreneurs are regularly getting the capital from personal savings and family support. Yet, to ensure business growth and survival, financial support from the government and other agencies is important. The policymakers have to disseminate the information about the various financial assistance that they provide to the entrepreneurs, especially for those who are operating businesses in rural areas. Besides financial support, non-financial support, such as business training and development, is also important to ensure entrepreneurs are more creative and innovative in their businesses,

which can help them expand internationally. At the university level, this research provides information regarding the psychological and behavioural finance in entrepreneurship that can be used as a core or elective course for undergraduate and postgraduate students. However, future research should consider including larger and more diverse samples of SME entrepreneurs to enhance the generalizability of the findings. Additionally, future studies should also investigate the interaction of anchoring and adjustment with other behavioural finance factors, such as risk perception, overconfidence, and loss aversion, and incorporate qualitative approaches to gain deeper insights into entrepreneurs' decision-making experiences.

ACKNOWLEDGEMENT

We want to express our sincere gratitude to all those who have contributed to completing this research. We are grateful to Pusat Usahawan MARA” (PUSMA) Kelantan for providing the necessary resources and facilities to conduct this research. Special thanks to Universiti Teknologi MARA, our colleagues, and peers for their constructive feedback and collaboration.

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