The Role of Regulatory Focus and Information in Investment Choice: Some Evidence Using Visual Cues to Frame Regulatory Focus

ABSTRACT

This study examines the role of regulatory focus and additional information on individual's risk preferences in investment choice using an experimental approach. The findings reveal that situational regulatory focus plays an important role in influencing investment choice. In particular, a congruent promotion-focused image and related message increases risk-taking behavior in terms of choice for stocks rather than fixed deposits, whereas the reverse is true for a congruent prevention-focused image and related message. However, this relationship depends on the amount of information available during the decision making process, regulatory focus has a stronger impact on investment choice under the condition without additional financial information.

Keywords:

Regulatory Focus, Additional Information, Risk Preference, Visual Cue, Decision Making

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1. INTRODUCTION

Recent behavioral finance literature has emphasized the "humanization of finance" and the incorporation of our "understanding of the human mind" into finance models and predictions (Shiller, 2012, p. 235). This emphasis moves away from traditional financial and economic theories suggesting that people rationally evaluate their financial investment decisions rather than make intuitive judgments. Research by Kahneman and Tversky (1979) and Tversky and Kahneman (1974; 1981; 1986), for example, suggests that financial investment decisions may be based on heuristics (exploratory, self-educating problem-solving techniques) rather than rational decision making. Heuristics occur when individuals simplify the process of forming judgments and making decisions, especially under complicated circumstances (Kida, Moreno, and Smith, 2010). Although they are used as intuitive strategies to guide decision making, they can result in cognitive biases (systematic deviations from logic and probability) (Arnott, 2006). One stream of literature on cognitive bias that has received much attention in recent years is the study of self-regulatory systems and regulatory fit, that is, the study of how an individual's motivational system causes the automatic use of heuristics to make a decision when exposed to a stimulus.

Regulatory focus theory (Higgins, 1997) suggests that individuals are guided by two different motivational orientations (promotion and prevention) in their efforts to attain a desired outcome. These two orientations influence risk behavior differently. In a promotion state, individuals are more sensitive to gains and more willing to take risks. Alternatively, individuals in a prevention state become more sensitive to losses and are more risk averse. People can naturally be more promotion- or prevention-focused as part of their traits, or they can be temporarily influenced by either one of the orientations when they are exposed to a stimulus or stimuli associated with a self-regulatory system (Higgins et al., 2001; Zhao and Pechmann, 2007). Regardless of whether the motivational state occurs naturally or situationally, individuals tend to feel more of a ‘fit’ and have a greater favorable attitude when exposed to a message that is aligned with their current state of regulatory focus. This is conceptualized as regulatory fit (Avnet and Higgins, 2006).

Of particular interest to this study is a paper by Zhou and Pham (2004), who argued that certain financial products are able to dictate regulatory focus when individuals are provided with messages about them. For instance, stocks generally have a promotion focus, while mutual funds generally have a prevention focus. In terms of the impact of this on investment decisions, individuals considering investing in stocks are likely to be more sensitive to gains and will tend to be more tolerant of higher risks to achieve a higher gain (Zhou and Pham, 2004). Since this finding implies that stocks are associated with the promotion concern, an individual in a promotion state is more likely to prefer investing in stocks. In contrast, individuals considering an investment in mutual funds are likely to be more sensitive to losses and more tolerant of lower risks and gains to ensure a safer investment (Zhou and Pham, 2004). This finding suggests that mutual funds and fixed deposits may be associated with the prevention concern and, as a result, an individual in a prevention state is more likely to choose them. However, in a real investment environment, potential investors are usually exposed to financial information or advertisements prior to making an investment decision. This stimulus may be associated with an individual’s self-regulatory system and, thus, may have the ability to motivate individuals to consider certain financial products.

Therefore, a question remains as to whether a stimulus containing a promotion- or prevention-focused picture and message can trigger a certain regulatory focus. A second question is whether regulatory fit plays a role in connecting an individual's current state of regulatory focus with certain financial products. For example, does being in a promotion state influence an individual's investment in stocks? Does being in a prevention state influence an individual's investment in fixed deposits?

In addition, this study also examined whether related financial information helps to reduce the cognitive bias in financial decision making. Past studies (e.g., Iselin, 1988; Malhotra, 1982; Russo et al., 1996) revealed that the amount of information available may affect the efficiency of information processing. As a result, it is worth investigating whether the influence of a temporary activation of an individual's promotion or prevention concern can be altered by the availability of additional financial information during the investment evaluation process. This research compared the situations with and without the provision of additional financial information. The situation with no additional information included only a picture and a brief introduction of each investment product, whereas the situation with additional information included all of the same information, plus five-year past performance data for stocks and fixed deposits.

In summary, this study examined two research questions: 1) Does a stimulus associated with a regulatory focus affect an individual's intention to invest in a financial product that is also associated with a regulatory focus?, and; 2) Is the effect of the stimulus on the intention to invest moderated by the amount of information provided during the decision making process?

Using an experimental approach, the results indicate that preferences for financial products are consistent with the predictions. In particular, when participants were exposed to promotion-focused (prevention-focused) stimuli, they tended to have a greater intention to invest in stocks (fixed deposits). The findings also indicate that the amount of information available when evaluating investment alternatives may lessen the effect of the stimuli. The results provide evidence that a visual cue based on a regulatory focus may prime the distinct states of promotion or prevention and trigger a preference among different types of investments. The effect, however, is mitigated when more cognitive effort is required to process additional information that may be provided.

The present study contributes to the behavioral finance literature in the following ways. First, it responds to the call of behavioral finance researchers for a better understanding of the human mind in financial decision making by providing some insights on how and why individuals make different investment decisions using the regulatory focus framework. More specifically, this study increases our understanding by providing evidence that the messages evoked by both pictures and phrases associated with an individual's self-regulatory system can stimulate intuitive judgment based on the manipulated state of regulatory focus. This can help to determine an individual's risk preference regarding investment options under consideration. For instance, do individuals prefer to invest in a riskier option (such as stocks) when presented with a promotion-focused stimulus? Conversely, do they prefer to invest in a less risky option (such as fixed deposits) after exposure to a prevention-focused stimulus? The present study considers not only types of financial products, but also the stimuli that prime certain states of regulatory focus and cause cognitive bias in financial decision making. The concept of regulatory fit is used to provide a better explanation of why potential investors prefer certain types of financial products after viewing a stimulus. Second, this study provides evidence that additional, related financial information helps to reduce cognitive bias in financial decision making. This not only adds to our understanding of the role of information in decision making but also how regulatory fit can be influenced by different levels of information. This evidence is not available in the emerging literature on the subject.

The next section provides a discussion of the relevant literature. It is followed by the study's methodology and results. This article concludes with a discussion of the implications of the findings on the growing body of literature on investment decision making.

2. THEORETICAL BACKGROUND

An Activation of Situational Regulatory Focus

The fundamental principle underlying regulatory focus theory (RFT) is the premise that individuals are guided by their self-regulatory system to approach pleasure and avoid pain (Higgins, 1997). While both promotion and prevention foci coexist in every individual, one or the other may be stronger depending on temporary and chronic accessibility (Zhou and Pham, 2004). An individual in a state of promotion focus tends to be more sensitive to higher gains, achievements, and advancement. In contrast, an individual in a state of prevention focus tends to be more sensitive to losses, security, and responsibility (Higgins, 2002).

A considerable amount of empirical evidence supports the idea that regulatory focus influences product consumption preferences. For instance, relative to prevention-focused consumers, promotion-focused consumers are more likely to choose a luxury alternative over a protection alternative (Safer, 1998; Shah and Higgins, 2001). They also have a greater tendency to purchase new products (Herzenstein, Posavac, and Brakus, 2007). This phenomenon can be applied to financial products as well (Zhou and Pham, 2004). RFT also implies that when individuals are given two types of financial products, investors in a promotion state are more likely to choose the one with higher potential gains and higher risk than investors in a prevention state (Higgins, 1998). Although the attention of most previous research has been on activating regulatory focus using messages and tasks (Higgins, 2002; Semin, Higgins, de Montes, Estourget, and Valencia, 2005; Yi and Baumgartner, 2009), a question remains as to whether the distinct states of regulatory focus can be activated by visual cues, such as a picture with different orientations of regulatory focus. More empirical evidence is required to answer the question.

Regulatory Fit and Decision Making

In decision making, individuals usually evaluate available alternatives based on their perceived value of each alternative and they will then choose the alternative with the highest value. Past research (e.g., Avnet and Higgins, 2006) reveals that regulatory fit may change the perceived monetary value of a choice individuals have made, or the influence of a message they have received. Decision makers may have a more favorable attitude and behavioral intention when they are exposed to a message that is congruent with their regulatory focus. That is, the message becomes more persuasive when a promotion (prevention) focused message is presented to a promotion (prevention) focused person. This situation, a match between the individual's regulatory state and the message, is called regulatory fit. When there is a fit, an individual feels right and makes intuitive judgments based on the feeling (Higgins, 2000; 2002).

Past studies (e.g., Kim, 2006; Lin and Shen, 2012; Zhao and Pechmann, 2007) have investigated the role of regulatory fit in persuading potential buyers using advertising messages without pictures. For instance, Lin and Shen (2012) found that consumers find an advertisement more persuasive when the message frame and product benefits are compatible with their regulatory focus. In addition, Cesario and Higgins (2008) found that nonverbal cues can also increase message effectiveness when they fit an individual's self-regulatory orientation. Therefore, regulatory fit plays a crucial role in enhancing the persuasiveness of a cue during decision making. However, there is still a lack of empirical evidence on whether a visual cue can also create regulatory fit and add value to its persuasiveness with message recipients. Since a temporary activation of regulatory focus is possible, more research is required to determine if a situational motivational state triggered by visual cues can lead to regulatory fit when individuals are evaluating alternatives that are congruent with their motivational orientation.

Regulatory Fit via Image-Message Congruence

As the saying goes "a picture is worth a thousand words." Behavioral finance research literature suggests that visual priming may influence the processing and understanding of disclosure information by investors, regardless of their knowledge level (Wang and Dowding, 2010). Furthermore, Thornton, Kirchner, and Jacobs (1991) found that subjects in a photographic condition had higher attention levels than those in a non-photographic condition. When messages are placed together with images, the image-message congruence increases a viewer's favorable thoughts (Chang and Lee, 2009). This phenomenon indicates that the consistency of presented information allows viewers to easily process information. Linking this idea to the concept of regulatory fit, image-message congruence may enhance the effect of regulatory fit. For instance, a promotion-focused image shown together with a message may induce a promotional state in a faster and more efficient way than providing just a message alone. Knowing the influence of image-message congruence embedded with regulatory fit may enhance the understanding of individual decision making in general.

Information and Decision Making

Normative theory in decision making advocates rational behavior. This assumes that decision-makers are guided by all the related information they need to make decisions, and that analytic processes are involved in making a choice. However, more intuitive judgment can play an essential role in decision making when available information is incomplete, or overly provided (Damasio, 2012). In such situations, individuals rely on various simplifying heuristics rather than extensive cognitive processing (Gilovich, Griffin, and Kahneman, 2002). Alvarez and Cavanagh's (2004) study on the presentation of visual information, which contained colors, polygons, Chinese characters, shaded cubes, and letters, also supports that both the amount of visual information and the number of objects for each stimulus class impose capacity limits on visual short-term memory. Furthermore, Chewning and Harrell (1990) posited that individuals provided with a relatively high amount of information reach decisions that are less based on heuristics than individuals provided with relatively less information. While an optimal amount of information is crucial in decision making, especially in the context of financial investments, a more direct investigation of information's moderating role in decision making is still lacking. For example, how does information moderate the priming effect of a visual cue that is linked to self-regulatory systems? Knowing this may address questions about how the amount of information made available affects the consistency of investor decision making behavior.

3. THE PRESENT RESEARCH

The objective of this research was to investigate the role of regulatory focus, using the stimulus of an image paired with a message describing a financial product, in determining the intention to invest in financial products with different levels of risk. Another aim was to examine the influence of additional financial information on the decision making process in order to understand whether such information provided during the process will dilute the effect of regulatory focus on the decision. The stimulus used in this study consisted of a web page containing an advertisement about stocks and fixed deposits. The study's dependent variable was the intention to invest in either one of the financial products.

Hypotheses Development

According to RFT, regulatory focus can be induced situationally (Avnet and Higgins, 2006) and the situational regulatory focus obtained through manipulation may subsequently influence an individual's inclination regarding a decision strategy (Gardner et al., 1999). It was therefore predicted that images and messages with elements of a promotion focus could activate an individual's promotion system and produce a temporary state of promotion orientation. In contrast, images and messages with elements of a prevention focus might have the opposite effect. Being in a promotion/prevention state, individuals tend to prefer product attributes associated with that state due to regulatory fit. As a result, their promotion system is expected to activate when they see an advertisement with a promotion-focused image and message (Zhao and Pechmann, 2007). With this situational activation, individuals were predicted to be more sensitive to gains and to prefer financial products that could bring higher gains, such as stocks. In contrast, individuals exposed to prevention-focused advertisements would be more prevention focused and prefer safer financial products, such as fixed deposits, to minimize potential losses. Building from these arguments, it was hypothesized that:

H_{1a}: Promotion-focused advertisements will result in a greater intention to invest in stocks than prevention-focused advertisements.
$H_{1b:}$ Prevention-focused advertisements will result in a greater intention to invest in fixed deposits than promotion-focused advertisements.

Furthermore, building on past empirical support (e.g., Safer, 1998; Yoon, Sarial-Abi, and Gürhan-Canli, 2012) regarding the moderating role of additional financial information, it was predicted that the volume of financial information available to decision makers could affect their evaluation of alternatives. When a brief product message is available, an individual's decision is more likely to be influenced by an advertising image and message. In contrast, when additional information such as the investment product's historical performance data over time is provided, the attention of decision makers may be diverted to this additional information, reducing the influence of the advertisement. It was therefore proposed that the additional financial information might moderate the effect of the situational regulatory focus stimulated by the advertisement on the preference of financial investment products during decision making. The above reasoning led to the following hypothesis:

H_2: Promotion- (prevention-) focused advertisements will result in a greater intention to invest in shares (fixed deposits) in the “no additional financial information” condition than in the “with additional financial information” condition.

The study’s research framework (Figure 1, below) contains an examination of the main effect of regulatory focus stimuli (i.e., advertisements) on choice of investment, as well as the moderating effect of additional financial information that dilutes the impact of regulatory focus on the decision.

< Insert Figure 1 here >

4. RESEARCH METHOD

The aim of the study was to investigate the prediction that advertisements framed by regulatory focus might activate promotion and prevention orientations, resulting in an investment choice linked to a particular regulatory focus. This included investigating the prediction that the provision of additional financial information during the decision making process might reduce the consistency of investment decisions. The causal relationships of the variables under study were examined using an experimental approach. Participants were asked to complete a questionnaire after viewing an advertisement on financial products on a computer. The experiment was designed to test the main effect of the regulatory focus on investment decisions, and the moderating effect of additional information on the decision making process.

Pretest of the Stimuli

A pretest was conducted to confirm the validity of the materials used in the main experiment. The pretest consisted of two parts. First, ten individuals from a private university in Malaysia (four academics and six students) were invited to determine the most appropriate images as primes for the promotion and prevention foci. The participants were required to look at six pictures and then asked to rate on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) the extent to which they agreed that the image reflected a promotion-focused concern (i.e., wish to achieve success) or a prevention-focused concern (i.e., duty and responsibility to family). A short discussion was then conducted with the participants after the completion of the questionnaire to obtain their feedback on the images tested. Thereafter, the two images with the highest mean scores for the promotion- (M = 5.3) and prevention-focused messages (M = 5.3), respectively, were chosen for a manipulation test.

As the second part of the pretest, the manipulation test of the chosen stimuli was conducted with forty individuals (mostly working adults) from a private university in Malaysia. The aim of the test was to ensure that the pictures with regulatory focused messages reflected their respective promotion- and prevention focused primes. The promotion- and prevention-focused pictures used for the manipulation test were those selected at the end of the first part of the pretest. Each participant was randomly assigned to only one of two different conditions: one group of participants was exposed to the promotion-focused stimulus, while the other group was exposed to the prevention-focused stimulus. The promotion-focused stimulus consisted of a picture of a motivated executive with the message, “I seize every opportunity to succeed”, whereas the prevention-focused stimulus consisted of a picture of a happy baby with his parents and the message, “My family’s future is in my hands.” The participants were asked to rate their agreement on the extent to which the stimulus reflected a promotion concern or prevention concern. Rating was done according to a 7-point Likert scale with values ranging from 1 (wish to achieve success) to 7 (duty and responsibility to family). The results revealed a significant difference between the two stimuli (SD = 1.75, t = 5.73, p < 0.001); the prevention-focused stimulus (parents and baby) was rated as more of a prevention concern (M = 5.95) and the promotion-focused stimulus (executive) was rated as more of a promotion concern (M = 3.30). The results implied that the two stimuli were appropriate as primes of their respective regulatory focus. A summary of the pretest results is presented in Table 1.

< Insert Table 1 here >

Participants and Data Collection

A total of 107 general adults from a private university in Malaysia (58 females and 49 males) took part in the experiment. Sixty-three participants were provided with additional information during the decision making phase of the experiment, while 44 participants were not. Of the 63 participants provided with additional information, 33 participants were shown a promotion-focused advertisement, while 30 participants were shown a prevention-focused advertisement. Of the 44 participants that were not provided with additional information during the decision making phase of the experiment, 20 participants were shown a promotion-focused advertisement, and 24 were shown a prevention-focused advertisement. The participants ranged from 21 to

60 years of age, and the average age was 38. The participants consisted of academics (29.0%), administration officials (48.6%), and students (15.0%). Overall, about 30% of the participants had experience in stock investments, 47% had experience in mutual fund investments, and about 59% had experience in fixed deposit investments.

Data were collected over a 12-month period, from April 2013 to March 2014, and the experiment was conducted in the behavioral lab of a private university in Malaysia. Only individuals aged 21 to 60 years were eligible to participate in this study and advertisements were posted on campus to recruit participants. In addition, the snowballing method (i.e., participants introduced other participants) was used to recruit additional participants for the study. Appointments were scheduled with those who agreed to participate, and the experiment was then conducted by one of the study's authors who was not involved in teaching or administration at the university.

Experimental Design

A between-subjects 2 x 2 experimental design (regulatory focus: promotion versus prevention-focused advertisements; 'with' versus 'without' additional financial information condition) was developed to investigate the hypotheses. The study predicted that after viewing the promotion-focused (prevention-focused) advertisement, individuals would prefer the financial product with the higher return potential (higher security assurance). In addition, the study also predicted that the promotion-focused advertisement would result in a greater intention to invest in shares under the "without additional information" condition, compared to the "with additional information" condition. In contrast, the prevention-focused advertisement would result in a greater intention to invest in fixed deposits under the “without additional information” condition, compared to the “with additional information” condition.

Procedure

Prior to the actual experiment, participants were asked to read an explanatory statement regarding the experiment, and to sign a consent form. Participants were then randomly assigned to one of the four manipulated conditions: (1) with additional information/promotion-oriented picture; (2) with additional information/prevention-oriented picture; (3) without additional information/promotion-oriented picture; (4) without additional information/prevention-oriented picture. The experiment was performed on one participant at a time.

After being seated in front of a computer, participants were given time to look at the website of a simulated company named CGC Financial Group on the computer screen. For both the ‘with’ and ‘without’ additional financial information conditions, a manipulated advertisement was displayed as part of the website information. A brief description of each of the company’s financial products, namely, shares and fixed deposits, appeared at the bottom of the advertisement (see Figure 2a and 2b).

< Insert Figure 2a and 2b here >

In the condition with additional information, participants were shown the first web page and then asked to click on the CGC Shares and CGC Fixed Deposit links to view more details about the two products (see Figure 3a and Figure 3b). The only difference between the display of the two regulatory focus conditions was the picture placed at the top of the screen. The additional information consisted of five-year performance data for stocks and fixed deposits from 2007 to 2011. Specifically, the details of the stocks were adopted and slightly modified from a real financial product brochure. Details included dividend declared per share, market price per share, dividend income yield, and capital gain/loss per share. The original stock price was RM1. In contrast, the details of the fixed deposits included interest paid per RM1 per year, nominal value, interest income yield, and capital gain/loss per RM1. In addition to the financial data provided for the company's financial products, information on the performance of the Kuala Lumpur Composite Index was provided as a benchmark for participants to make comparisons.

< Insert Figure 3a and 3b here >

Although no time constraint was imposed on the review of the website information, participants were required to inform the experimenter once they had completed their review. Following this, each participant was given a questionnaire to complete. The questionnaire asked the participant to make an investment choice based on a scenario. The scenario stated "CGC Financial Group Berhad provides two types of financial products, i.e., individual shares (stocks) and a fixed deposit. Imagine that you have RM10,000 available to invest. Based on the webpage you have just seen, you have a choice of investing all your money in <u>ONE</u> of the financial products for a period of <u>ONE</u> year. Please ignore any tax implications when making your decision." The participants were then asked to indicate their preference on a scale of 1 (share) to 9 (fixed deposit). The scale was adopted from Zhou and Pham (2004) to measure the degree of preference amongst the two options.

In addition to this question, participants were asked to complete a basic test on financial literacy. The test, which contained 11 questions relating to risk and return, was designed to serve as a control variable for the different levels of financial knowledge. The questions were adopted from the study of van Rooij, Lusardi, and Alessie (2012) (see Appendix 1). Each correct answer was awarded one mark, and the total score ranged from 0 to 11. Most of the participants possessed a relatively high level of financial literacy ($M = 8$). The questionnaire also captured participants' demographic details.

5. Results

Manipulation Check

A manipulation check was performed at the end of the experiment. The participants were asked to indicate whether the advertisement they viewed reflected a promotion concern or a prevention concern according to a scale of 1 (duty and responsibility to family) to 7 (wish to achieve success). The results showed a significant difference in the mean score of the participants in the promotion group ($M = 4.36$) and the score of those in the prevention group ($M = 2.80$, $t = -4.85$, $p < 0.001$). Thus, both manipulated advertisements successfully stimulated the respective concerns.

Hypothesis Testing

As shown in Table 1, a two-way ANOVA was conducted to test the hypotheses. The results showed that situational regulatory focus had a significant main effect on the intention to invest in different financial products ($F(1,103) = 4.52$, $p < 0.05$). This implies that promotion-focused advertisements would result in a greater intention to invest in an individual stock, whereas prevention-focused advertisements would result in a greater intention to invest in fixed deposits. It also indicates that individuals would be more inclined to invest in stocks when they have seen only a promotion-focused advertisement, while others would be more motivated to invest in fixed deposits when they have seen only a prevention-focused advertisement. Therefore, hypotheses 1a and 1b are supported.

In addition, there was a two-way interaction between situational regulatory focus and the additional information condition ($F(1, 103) = 5.237$, $p < .05$). The results suggest that without additional financial performance information, individuals viewing the promotion-focused advertisement would have a greater intention to invest in shares ($M = 4.9$), whereas those who viewed the prevention-focused advertisement would have a greater intention to invest in fixed deposits ($M = 7.04$). In contrast, when additional information was made available, the difference in investment choice between the promotion and prevention advertisement groups was not significant ($M = 5.55$ vs $M = 5.47$). Figure 4 shows the interaction of situational regulatory focus and additional information. It clearly demonstrates the significant difference in investment choice when participants were not provided with additional information and when they were. This indicates that situational regulatory focus (i.e., the manipulated advertisements) has a significant impact on the selection of either stocks or fixed deposits when no additional financial information is provided to decision makers. Its impact on the preference of these two investment products is reduced, however, when more financial information is available, as more cognitive effort is needed under such a condition. Thus, based on the results, hypothesis 2 is supported.

< Insert Table 2 here >

< Insert Figure 4 here >

Discussion

The extant literature provides evidence on the influence of message framing associated with regulatory focus on choice evaluation (Cesario, Corker, & Jelinek, 2013; Kühberger, 1998; Safer, 1998; Yi & Baumgartner, 2009; Yoon et al., 2012) The present study contributes to the existing knowledge by providing empirical evidence that a combination of image and message associated with regulatory focus can act as a prime to activate the distinct motivational orientations. This can subsequently affect a preference in financial products, which is also associated with a specific regulatory focus. In particular, a promotion-focused prime leads to a preference for stocks, while a prevention-focused prime leads to a preference for fixed deposits. This finding extends regulatory focus theory in terms of the situational activation of an individual's self-regulatory system via an image that influences investor behavior. In addition, the study links situational regulatory focus to the financial products associated with regulatory focus, which provides a better explanation of the regulatory fit between financial products and distinct motivational states.

The results also suggest that the influence of regulatory focus is more effective when its manipulation is highlighted to decision makers using related information, such as a brief description of the financial products. It is crucial to know that the situational activation of regulatory focus can be mitigated when the need for cognitive thinking is increased due to the provision of more information when considering alternatives. This finding suggests that providing more financial information to decision makers may help them to evaluate alternatives in a more rational manner and, hence, reduce the effect of visual priming.

Implications

We often wonder why different individuals respond differently to an identical problem situation. This study provides one possible explanation: differences in regulatory focus. At a general level, the study is an important step forward in understanding how regulatory focus has the potential to affect all facets of individual decision making. In particular, the study's results suggest that a congruent image and message can be used to prime decision makers to act in specific ways regarding choice of investment. Since visual priming has a strong influence on information processing by investors and is widely used in the current investment environment (Wang and Dowding, 2010), the findings of this study provide valuable insight into the influence of regulatory-focus based visual priming at the information processing stage of investment choice.

Furthermore, this study highlights the importance of additional information to individuals when selecting investment products. Financial decision making or investment appraisal usually requires a high level of involvement, especially when the investment is large. As a result, the amount of financial information provided to decision makers for their evaluation of the alternatives becomes a crucial concern for information providers. The results of this study show that without additional financial information, decision makers are most likely to be influenced by a visual cue. However, when related financial information is provided, more cognitive effort is needed to process the information and the visual cue loses its influence. Since related financial information is essential to attain a non-biased evaluation of investment alternatives for decision making, potential investors should be encouraged to read and process the related financial information before making an investment decision. Currently, the awareness of the importance of such information is still low in the financial products market; many investors still make investment decisions based on their intuitive judgment, enhanced by the influence of a visual cue such as an advertisement. Securities commissions and investor education units need to be aware of this and increase their efforts to educate investors on the importance of considering related financial information in their investment decisions. They also need to ensure that potential investors read and understand the information relating to financial products before making an investment decision.

Finally, the results have implications for executives and managers, who should be aware of their personal regulatory focus tendencies. These tendencies could be influenced by visual advertisements that might affect their investment decisions. Just being aware of the potential impact of visual images on their regulatory focus could prompt executives to take steps to consider more factors than those provided by the images when making financial investment decisions.

Concluding Remarks

This study, which drew on previous studies of regulatory focus, provides useful insight into the influence of situational regulatory focus on risk preference in investment choice. The study also highlights that information processing is essential in the evaluation of investment choices; useful information, in particular, may help to reduce the influence of an advertisement with a certain priming effect during the investment appraisal process. In addition, the study suggests that while regulatory focus based messages have a strong priming effect, regulatory focus based images also play an important role in triggering an asymmetric preference for different types of investment products. The findings of this study add to a growing body of literature on financial decision making in organizations in general, and investment decision making in particular. The results demonstrate that a distinct regulatory focus can be activated via a congruent image and message, and that this has a stronger impact on investment choice when related financial information is not supplied.

Limitations and Future Research Directions

In evaluating the results of this study, a few limitations are worth noting. First, the participants in this study had higher than average financial literacy, making them more likely to be able to process additional financial information made available to them. Therefore, the predictions regarding the influence of situational regulatory focus and related financial information may not be generalizable to individuals with average or lower than average financial literacy. There is still a need to determine if the influence of the regulatory focus prime on decision making would be similar or even more obvious for individuals with lower financial literacy under high and low information load conditions.

This study used only two product categories (stocks and fixed deposits), hence, the results may only be useful in predicting decisions for investment product categories with definite high or low risk levels. A real investment environment contains a variety of investment products with different levels of risk and the possibility of more complicated decision making. As such, there is still a need to investigate the impact of situational regulatory focus on other investment opportunities and products offering different levels of risk.

Beyond that, in the real investment environment, potential investors may be inundated with all sorts of financial information. It is reasonable to believe that investors would process such information before making a decision, leading to a reduction in the impact of the visual regulatory focused stimuli. However, this study highlights that exposure to visual cues plays an important role in influencing decision making immediately after viewing. As such, the study's findings are more relevant to situations where exposure of the visual cues occurs right before an investment decision.

This study did not investigate the intervening effect of stock brokers or financial planners, who play an important role in providing advice to investors during the decision making process. Presumably, the priming effect of the distinct regulatory foci could be less effective with guidance provided by stock brokers and financial planners at the point of exposure to visual cues. These and other related issues are left to future studies.

Future research could also investigate the impact of situational regulatory focus and information load on different investment opportunities with different risk levels. It might also explore whether an investment appraisal would be different when investors are presented with investment advice with either a promotion or prevention slant. In a more general context, future studies could also explore how the priming of regulatory focus influences risk taking behavior in other business contexts, such as property investment and business ventures with different risk profiles. Investigating this may help to generalize the empirical support of the influence of regulatory focus on risk preference from basic financial product categories such as stocks and fixed deposits, to other, more sophisticated investment opportunities.

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Table 1: Summary of the Pretest

Pretest	First Part	Second Part
Purpose	To determine the most appropriate images as primes for promotion and prevention focus.	To ensure the manipulation of pictures with regulatory focused messages work well in the experimental setting.
Sample	10 individuals	40 individuals
Pictures	6 pictures, choose 1 for each promotion- and prevention-focused image.	2 chosen pictures from the first part.
Method	Participants were asked to indicate the extent of their agreement on each picture used as a reflection of either promotion- or prevention focus, followed by a short discussion.	Participants were only exposed to either promotion- or prevention-focused image with message. They were asked to indicate the extent to which stimulus reflects a promotion concern or prevention concern on a 7-point Likert scale from 1 (wish to achieve success) to 7 (duty and responsibility to family).
Outcome	Two pictures with the highest mean score of promotion- and prevention-focused message respectively were chosen.	The prevention-focused stimulus (parents and baby) was rated as a more prevention concern and the promotion-focused stimulus (executive) was rated as a more promotion concern.

Table 2: ANOVA of the Effect of Regulatory Focus Priming, the Effect of Additional Information and the Interaction Effect between Regulatory Focus Priming and Additional Information

Source	df	Type III Sum of Squares	Mean Square	F	Sig.
Regulatory focus priming	1	27.401	27.401	4.520	.036*
Additional Information	1	5.564	5.564	0.918	.340
Regulatory focus priming * Additional Information	1	31.747	31.747	5.237	.024*
Error	103	624.407	6.062		
Total	107	4206.000			

Note:

a. Dependent Variable: preference on a 1 (share) to 9 (fixed deposit)
b. **p* < .05

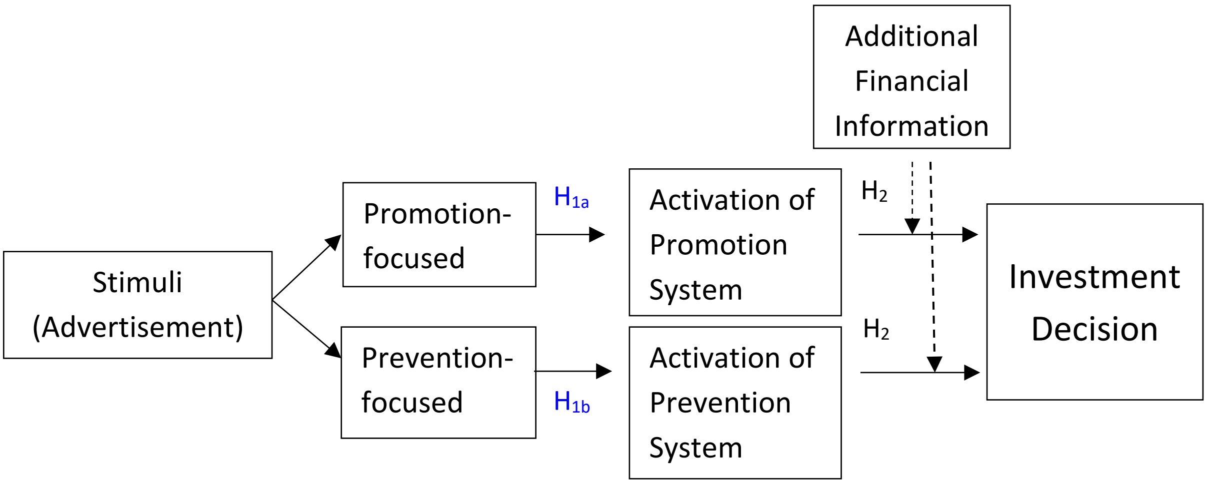
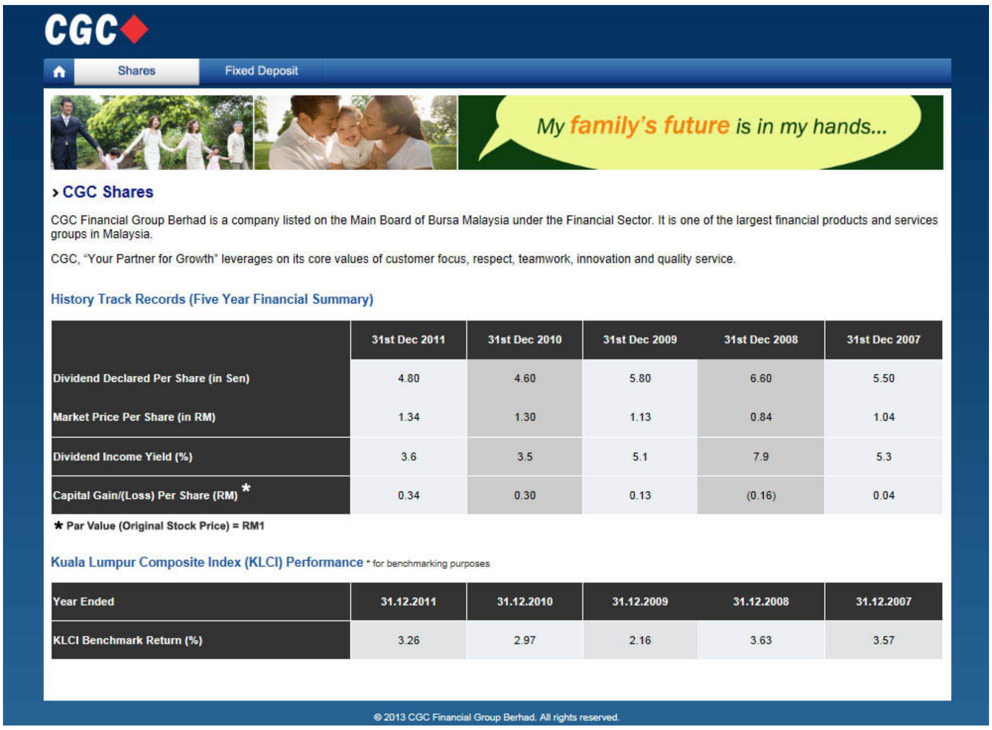


Figure 1: Research Framework

Figure 2a: Web Site Page with Promotion-focused Advertisement

Figure 2b: Web Site Page with Prevention-focused Advertisement



› CGC Shares

CGC Financial Group Berhad is a company listed on the Main Board of Bursa Malaysia under the Financial Sector. It is one of the largest financial products and services groups in Malaysia.

CGC, "Your Partner for Growth" leverages on its core values of customer focus, respect, teamwork, innovation and quality service.

History Track Records (Five Year Financial Summary)

	31st Dec 2011	31st Dec 2010	31st Dec 2009	31st Dec 2008	31st Dec 2007
Dividend Declared Per Share (in Sen)	4.80	4.60	5.80	6.60	5.50
Market Price Per Share (in RM)	1.34	1.30	1.13	0.84	1.04
Dividend Income Yield (%)	3.6	3.5	5.1	7.9	5.3
Capital Gain/(Loss) Per Share (RM) *	0.34	0.30	0.13	(0.16)	0.04

* Par Value (Original Stock Price) = RM1

Kuala Lumpur Composite Index (KLCI) Performance * for benchmarking purposes

Year Ended	31.12.2011	31.12.2010	31.12.2009	31.12.2008	31.12.2007
KLCI Benchmark Return (%)	3.26	2.97	2.16	3.63	3.57

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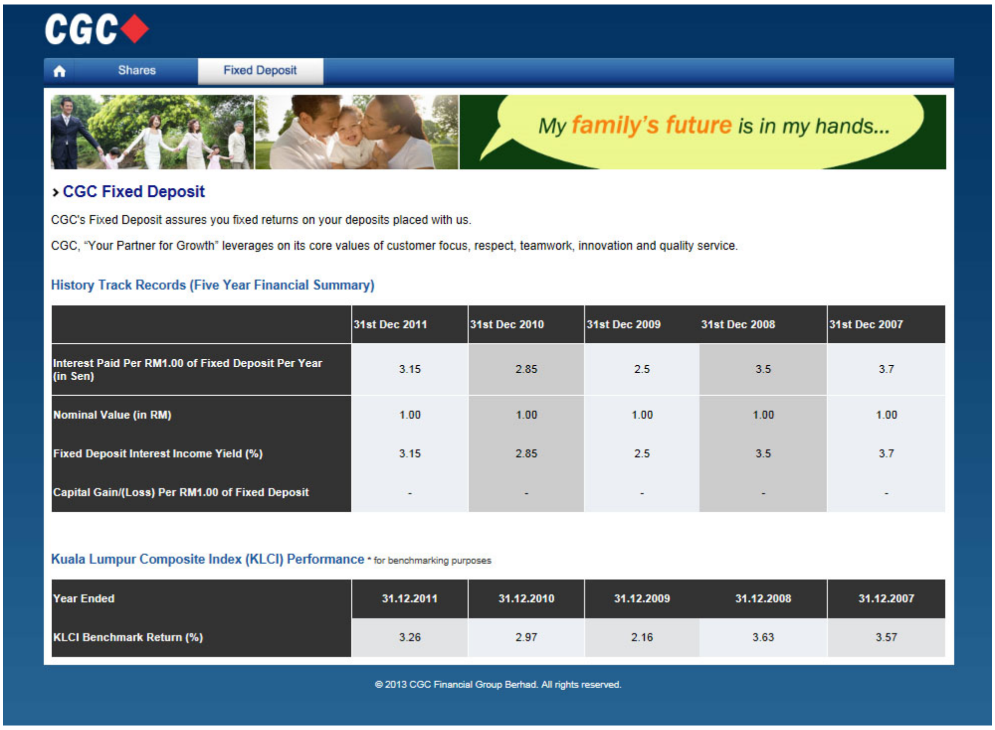
Figure 3a: Additional information on CGC shares (Prevention condition)



CGC

Shares | Fixed Deposit

My family's future is in my hands...

› CGC Fixed Deposit

CGC's Fixed Deposit assures you fixed returns on your deposits placed with us.

CGC, "Your Partner for Growth" leverages on its core values of customer focus, respect, teamwork, innovation and quality service.

History Track Records (Five Year Financial Summary)

	31st Dec 2011	31st Dec 2010	31st Dec 2009	31st Dec 2008	31st Dec 2007
Interest Paid Per RM1.00 of Fixed Deposit Per Year (in Sen)	3.15	2.85	2.5	3.5	3.7
Nominal Value (in RM)	1.00	1.00	1.00	1.00	1.00
Fixed Deposit Interest Income Yield (%)	3.15	2.85	2.5	3.5	3.7
Capital Gain/(Loss) Per RM1.00 of Fixed Deposit	-	-	-	-	-

Kuala Lumpur Composite Index (KLCI) Performance * for benchmarking purposes

Year Ended	31.12.2011	31.12.2010	31.12.2009	31.12.2008	31.12.2007
KLCI Benchmark Return (%)	3.26	2.97	2.16	3.63	3.57

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Figure 3b: Additional Information on CGC Fixed Deposit (Prevention condition)

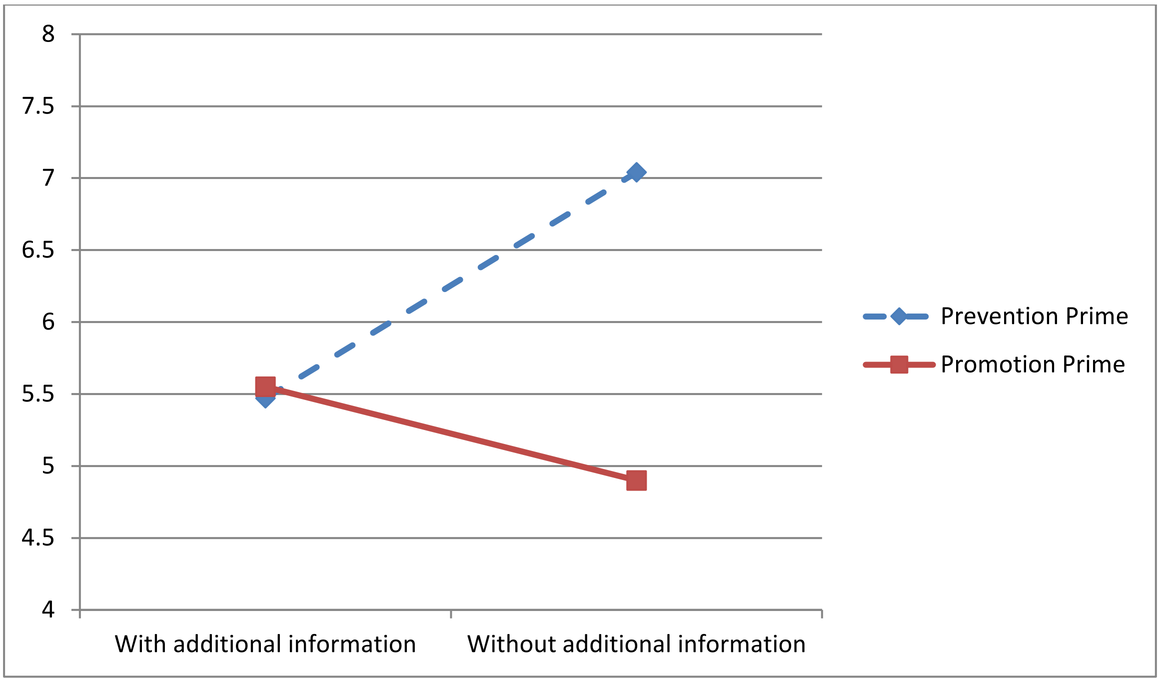

Figure 4: The Interaction of Situational Regulatory Focus and Additional Information

Appendix I: Questions for the Measurement of Financial Literacy Level

(1) Suppose you had RM1000 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow?
(i) More than RM1020; **(ii)** exactly RM1020; **(iii)** less than RM1020; **(iv)** do not know.

(2) Suppose you had RM1000 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After five years, how much would you have on this account in total?
(i) More than RM2000; **(ii)** exactly RM2000; **(iii)** less than RM2000; **(iv)** do not know.

(3) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?
(i) More than today; **(ii)** exactly the same; **(iii)** less than today; **(iv)** do not know.

(4) Assume a friend inherits RM10,000 today and his sibling inherits RM10,000 three years from now. Who is richer because of the inheritance?
(i) My friend; **(ii)** his sibling; **(iii)** they are equally rich; **(iv)** do not know.

(5) Suppose that in the year 2014, your income has doubled and prices of all goods have doubled too. In 2014, how much will you be able to buy with your income?
(i) More than year 2013; **(ii)** the same as year 2013; **(iii)** less than year 2013; **(iv)** do not know.

(6) Which statement describes the main function of the share market like Bursa Malaysia?
(i) The share market helps to predict share earnings;
(ii) the share market results in an increase in the price of shares;
(iii) the share market brings people who want to buy shares together with those who want to sell shares;
(iv) do not know.

(7) What happens if somebody buys the share of firm B in the share market?

(i) He owns a part of firm B; **(ii)** he has lent money to firm B; **(iii)** he is liable for firm B debt; **(iv)** do not know.

(8) Considering a long time period (e.g. 10 or 20 years), which asset normally gives the highest return?

(i) Fixed deposits with bank; **(ii)** unit trust fund; **(iii)** shares; **(iv)** do not know.

(9) Normally, which asset displays the highest fluctuations over time?

(i) Fixed deposits with bank; **(ii)** unit trust; **(iii)** shares; **(iv)** do not know.

(10) When an investor spreads his money among different assets, what is the effect on the risk of losing money?

(i) Increase; **(ii)** decrease; **(iii)** stay the same; **(iv)** do not know.

(11) Stocks are normally riskier than unit trust funds.

(i) True; **(ii)** false; **(iii)** do not know.

Note: This article has not been published elsewhere and it has not been submitted simultaneously for publication elsewhere.