Original Article

BIBLIOMETRIC REVIEW OF THEORIES RELATED TO INVESTMENT DECISIONS IN FINANCIAL INSTRUMENTS

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DOI: 10.47750/pnr.2022.13.S01.173

Abstract

Investment is the acquisition of an item or asset to generate income or appreciation in the value of the item or asset. The industrial revolution popularised the idea of investing in an individual's savings. The large-scale employment of the populace made it possible for them to have savings. This paper reviews the Theory of Reasoned Action, Theory of Planned Behaviour, Regret theory, Theory of Mental Accounting, Prospect theory, Over/Under Reacting Theory and Theory of Overconfidence. These theories were extensively cited by the articles related to investment decisions in financial decisions and are therefore explored in detail.

INTRODUCTION

Investment is the acquisition of an item or asset to generate income or appreciation in the value of the item or asset over time. When a good, for example, silver, gold, platinum or palladium, is purchased with an intent to sell it in the future to earn returns and not with an intention to consume it. Investment can be generalised as an outlay on an asset today, with an expectation of a greater return in the future than the initial outlay. Investment can be traced back to the Code of Hammurabi. The first modern style was the Presbyterian Ministers' Fund, set up in 1759 by the First Presbyterian Church in Philadelphia.

The industrial revolution popularised the idea of investing in an individual's savings. The large-scale employment of the populace made it possible for them to have savings. Lehman Brothers, Goldman Sachs and JP Morgan were founded in the 1800s. The above-mentioned financial institutions helped the US federal government by selling government bonds worth millions of US dollars to finance the American Civil war. The setting up of stock exchanges helped accelerate people's investing. The oldest known stock exchange is the Amsterdam Stock Exchange of the Netherlands. Stock exchanges provide the investor with an avenue to liquidate their holdings as and when they feel like it. The ability to liquidate their holdings in a stock exchange made stock exchanges and investments popular among the populace. This article lists the theories related to an investment decision of a layman. The theories reviewed are the Theory of Reasoned Action, Theory of Planned Behaviour, Regret theory, Theory of Mental Accounting, Prospect theory, Over/Under Reacting Theory and Theory of Overconfidence.

RESEARCH METHODOLOGY

The author has reviewed 30 articles in Scopus and Web of Science listed Journals and found the articles extensively cited these seven theories. The seven theories were therefore looked into in depth to provide an insight into how these theories play a role in the investment decision.

Theory of Reasoned Action

The Theory of Reasoned Action (Ajzen and Fishbein, 1980)[i] considers the intention of the behaviour as the direct motivator for individuals to perform the behaviour. TRA, even though widely accepted, did not precisely predict the behaviour of individuals who were constrained by a lack of opportunities or time etc., even when the individual would otherwise be socially urged and is favourable to perform it (Ajzen, 1991)[ii].

TRA was used to study the Malaysian investor's intention to use the internet for trading stocks (Ramayah, T., et al., 2009)[iii]. It was found that 52% of the differences in the behavioural intention to use the internet for trading stocks by Malaysian investors could be explained by the subjective norm and attitudes of the respondent. 48% of the differences in the attitude of the respondent were explained by the perceived ease of use of the internet and perceived usefulness.49% of the differences in subjective norm were explained by the descriptive norm and the injunctive norm.

TRA was used to identify signals in e-tailing websites that would enhance or impact their success (Ahrholdt, D. C., 2011)[iv]. Although it was widely accepted, TRA did not precisely predict the behaviour of individuals constrained by a lack of opportunities or time, even when the person would otherwise be socially urged and is favourable to perform it (Ajzen, 1991)[2].

Theory of Planned Behaviour

Ajzen (1985[v],1991[2],2002[vi]) introduced the Theory of planned behaviour, considered one of the pre-eminent theories of social psychology. It can be used to efficiently and efficiently anticipate the behaviour of humans. It was refined for a pre-existing theory known as the Theory of Reasoned Action (Ajzen and Fishbein, 1980)[vii]. The Theory of planned behaviour was reviewed for its possible application in health-related behaviours and to verify the efficiency of the Theory to accurately and systematically explain and predict health-related behaviours at large (Godin, G., & Kok, G., 1996)[viii]. The articles on health-related behaviours from 1985 to 1996 were studied, and it was found that the studies averaged an R-Squared of 0.41 was observed. The perceived behavioural control and the attitude of the respondent towards the action were the most significant factors which explained the variations in the intention of the respondent. The study concluded that the Theory of planned behaviour was sufficiently good at explaining the intention of the respondent. The efficiency of the Theory was found to vary between health-related behaviour categories.

Regret Theory

The Regret theory studied the emotional reaction people experience as a result of them realising an error in judgement they have made. The prospect of selling a financial instrument by the person holding/owning the financial instrument being emotionally affected as a result of the price at which the financial instrument was bought can be an example of the situation involving the regret theory. The investor would, in order to avoid being repentant would, not sell the financial instrument. Some investors avoid feeling regretful by buying stocks that others in the market are buying (herding behaviour) and following the conventional wisdom and, in turn, justifying their investment decision by postulating that everyone else is doing it, it would be a wise decision. Regret theory was used by Taylor, K. (1997)[ix] to assess consumer satisfaction with watching a movie; using regret theory found that when movies were watched either by going to the theatre or renting the unchosen alternative had a consequence on the satisfaction of the respondent, esp. when the expectations from the movie that was watched were not met. Dodonova, A., & Khoroshilov, Y., 2005[x] presented a model for asset pricing that assumed that some of the investors in financial assets may/might have regrets. The model predicted that the market, on account of price-sensitive information/news, would over-react. It also concludes that there would be a negative long-run correlation of returns to investment in stocks and a positive short-run correlation of returns to investment in stocks. The article also concluded that there would be a "positive correlation between future market trading volume and the dispersion of the realised stock returns".

Regret theory was applied to investment choices in currency hedging (Michenaud, S., & Solnik, B., 2008)[xi]. It was concluded that regret was experienced by the trader when the outcome of the non-chosen option is "visible", and the returns on the currency are evident and emotional. It was also found that people not involved in finance seemed to have an opinion on the value of the US dollar, esp. ex-post facto. It was also observed that institutional asset managers were criticised ex post facto by a board of trustees even though Ex-ante hedging decision due to risk averseness was reasonable. "Regret theory: a bold alternative to the alternatives" was a paper written by Bleichrodt, H., & Wakker, P. P., 2015[xii]. It looked into the regret theory introduced by

(Loomes, G., & Sugden, R., 1982),[xiii] before which deviations observed by the empirical study from rationality were considered too chaotic and *noise* (Arrow, K., 1951)[xiv]. Peng, H. G., et al., 2019[xv] used regret theory and the ELECTRE III model to understand investment decisions in new energy resources. The study found solar energy investments to have the lowest risk and the environment as a variable as the most critical factor for new investment in energy.

Theory of Mental Accounting

Humans have a habit of placing events they have experienced into mental compartments. The difference between these compartments at times impacts a person's behaviour than the events themselves. Thaler, R.,1985,[xvi] in his paper "Mental Accounting and Consumer Choice", developed a hybrid model of psychology and economics that could be better used to understand the consumer decision-making process in light of choices. Mental accounting theory, along with prospect theory, are expedient in analysing anomalies in asset pricing (Grinblatt, M., & Han, B., 2005)[xvii]. The anomalies could be related to IPO pricing (Loughran and Ritter,2002[xviii]; Barberis and Huang,2004[xix]) and equity premium (Barberis et al.,2001)[xx].

"Mental Accounting and Categorisation" by Henderson, P. W., & Peterson, R. A., 1992[xxi] concluded that mental accounting is not a unique process happening when money or thing of monetary value are involved, even though the focus and terminology used would differ. It is a type of decision framing; it was also concluded that mental accounting is a case of classification Soman, D., 2001,[xxii] in his study on the impact of mental accounting on sunk cost, found that the effect of the sunk cost was weak it came to temporal investments. It was established by the study that lack of attention to sunk cost was not a result of increased rationality of the respondent. However, it was not easy to account for the respondent's time mentally. The sunk-cost effect would reappear when mental accounting for the time was facilitated by experimental manipulation. The study concluded that people, in general, are compulsive mental accountants of money. People seemed to set up mental accounts when a non-monetary resource was converted to a monetary equivalent. They preferred closing the converted monetary equivalent of a non-monetary resource 'in the black'. The changes in the size of sunk-time investment had no significant impact on the current decision-making of the respondent. A controlled laboratory experiment was carried out to observe and study an individual's behaviour in investment decisions which involved options. The study found that individuals with extensive experience had not fully exploited arbitrage opportunities in the market. The investors behaved as if they had the option to either invest in stocks or options to a mental account and bonds to a distinct account; such behaviour was in line with experimental observations and could be constructed as the creating of a two-layered portfolio made up of a safe layer and a risky layer which is in line with the behavioural portfolio theory (Rockenbach, B., 2004)[xxiii].

Thaler, R. H., 1999[xxiv] suggested further areas of studies that could be better analysed by mental accounting. A $10 off coupon that could be redeemed in an online grocery store increased the respondent's spending, which was in line with, as predicted by the TMA; it was also found that the amount of discount was used to purchase products that he would not have purchased in the absence of the coupon (Milkman, K. L., & Beshears, J., 2009)[xxv].TMA was used to study online shopping; it was found that respondents' *perception* of shopping online through the internet influenced the respondent's purchase decision from the online vendor. The study also found that the effect of perceived risk on the intention to purchase by the respondent could be insignificant in light of the mediating role of *perceived value* (Gupta, S., & Kim, H. W. 2010)[xxvi]. The willingness of investors in real estate increases by the most significant amount when the returns from the investment grow from no/nil returns to positive returns territory (Seiler, M. J., et al., 2012)[xxvii].

Prospect/Loss aversion Theory

Prospect theory suggests that people express different degrees of emotions for gains and losses. It was found that individuals are less happy with prospective gains than they are stressed about equal losses; for example, an investment advisor would not be necessarily inundated with communication from his/her clients when he/she reported, say, a ₹200,000.00 gain in the client portfolio, but would be inundated with communication from his/her clients if he posted a ₹200,000.00 loss in the client's portfolio. This shows that people were not more concerned when they lost money in their investments than when they would be from making money from their investments. People react more to news of loss than news of gain in their investment portfolio. The loss aversion theory proposes that the reason investors might choose to hold on to loss-making instruments and sell their profit-making trade would be the belief that presently loss-making instruments may outperform today's winners in the future. Investors also often make the mistake of chasing the market by investing in financial instruments such as stocks or mutual funds, which garner the most attention. Research on this phenomenon shows that fund flows into mutual fund schemes with

higher performance than those underperforming mutual fund schemes (Kahneman, D., & Tversky, A., 1979)[xxviii].

Levy, J. S. (1996)[xxix] in his article "Loss aversion, framing, and bargaining: The implications of prospect theory for international conflict." Proposed using prospect theory and loss aversion, which dealing conflicts between sovereign states. Loss-aversion could elucidate the extra returns of investments in stock in comparison to bonds/debenture and the tendency of uber/cab drivers to work longer hours on low wages (Camerer, C. F., 1998)[xxx]. The asset prices in an economy where investors in financial instruments derive utility from volatility in the value of their financial assets and consumption are very similar to what had been observed from historical data on the financial asset; stock returns have disproportionate volatility and high mean and are predictable in the times series, stock returns are weakly correlated with the growth in consumption (Barberis, N., et al., 2001)[xxxi].

In an economy where investors in financial instruments derive utility from volatility in the value of their financial assets and consumption, investors are loss averse to volatility in the value of their financial assets. The extent of loss averseness depends on the investor's prior investment experiences (Barberis, N., et al., 2001)[28]. When plotted on a graph, the utility for losses was convex, and gain was concave; loss aversion at individual and aggregate levels varied with the definition of loss aversion used (Abdellaoui, M., et al., 2007)[xxxii]. Abdellaoui, M., et al., 2008[xxxiii] proposed a novel method to quantify loss aversion and utility under the prospect theory; they decreased the number of elicitations that were required to gauge utility function under the new method to 10-12 measurements from 18-20 measurements (Abdellaoui, M., et al., 2007)[xxxiv].

Over/Under Reacting Theory

Investors get optimistic when the financial market goes up and assume that the financial market will continue to be bullish. On the other hand, investors tend to become pessimistic amid bearish financial markets. Investors place too much significance on recent events and ignore historical data and the performance of the market, which results in excessive volatility on account of price-sensitive information being made public. The magnitude of returns on account of "overreaction" is economically significant, which means it can be exploited by the market participants. After a financial instrument which was held long-term entered a bullish trend and experienced a significant positive return, it is highly suggested to reduce or eliminate holding in that particular stock/financial instrument. It is better suited for active investors to invest in stocks/financial instruments to "buy on the rebound" on account of most of the rebound happening in the week following the fall in value and the above-average returns dissipating after the fifth week of the event (Howe, J. S., 1986)[xxxv].

Under reaction to new publicly available price-sensitive information is neither a sufficient prerequisite nor necessity for event-based predictability. The predictability of financial instruments arises when the event happens in response to a mispricing in the market value of the asset. When a public event initiates a continued overreaction, predictability could arise; for example, post quarterly earnings announcement by a business entity, the post-earnings announcement drift may be a continued overreaction prompted by any price-sensitive information announcement to the pre-event information (Daniel, K., et al., 1998)[xxxvi]. Hong, H., & Stein, J. C., 1999[xxxvii] observed that markets, where information is disseminated slowly, had noticeable long-run reversals and short-run continuation; the investors tended to have a long-run overreaction to information which was initially private than to news disseminated at large, and there is a relationship between the pattern of return autocorrelations and momentum trader's horizon. Bubbles in the financial markets could be reduced with market participants having relevant subject experience and academic qualifications. The existence of a futures market, the certainty regarding future dividends and market participants having low liquidity and constrained access to cash and its equivalents tend to inhibit the financial bubble. It was observed that the existence of call markets, taxes on capital gains, brokerage fees, and short selling were neutral in their impact on the financial bubble in the market. It was concluded that during the early trading periods, the momentum model underestimates the mean contract price, and during the later periods, it overestimates the mean contract price (Caginalp, G., et al., 2000)[xxxviii].

The state of the financial market significantly impacts the price to momentum strategies of market participants; a six-month momentum portfolio of a market participant is profitable only if it is followed by a period of market gains, consistent with the over-reaction models of Hong, H., & Stein, J. C. (1999)[xxxix]. The momentum profits increase when the lagged market returns increase. The long-run reversal was not solely due to the corrections of initial momentum in the stock market (Cooper, M. J., et al., 2004)[xl]. A Short period of averaging would cause volatility in the value of standard deviation and mean returns which would increase the level of "noise" in the data. It was derived that there exist statistically significant differences between the volume of countermovements after "normal" returns and the volume of countermovements after atypical returns. The foreign exchange market was the only exception to this phenomenon. The magnitude of the contrarian movement of market value was higher in the Ukrainian stock market than in the US market. It was concluded that the Ukrainian stock market had a higher

potential for speculation when compared to the US stock market, the Ukrainian stock market was less efficient, and low levels of market efficiency provided market participants to earn extra profits (Plastun, O., & Mynhardt, R., 2013)[xli]. Partial publicity of price-sensitive information succeeds in reducing the extent of overreaction by the participant's account of it, depriving those who do not have access to the price-sensitive information of the public signal, which in turn leads to the conclusion that the actual non-availability of price-sensitive information rather than the market participant perception of partial publicity, thus it can be concluded that lack of price-sensitive information at large to all participants reduces over-reaction (Baeriswyl, R., & Cornand, C., 2014)[xlii].

Theory of Overconfidence

People tend to evaluate themselves as being better than their abilities. This leads to them overestimating the precision and accuracy of the knowledge they possess and overestimating the precision and accuracy of the knowledge they possess relative to others. It is the congruent belief of the market participant in financial markets that they consistently and accurately time the market. Venture capitalists' decisions to invest in start-ups are biased by their overconfidence. The accuracy of decisions is also affected by this overconfidence. The level of overconfidence varied with the vividness, amount and form of the information used for the decision to invest. The level of overconfidence increased with more information, moderate predictions on the future performance, unaccustomed framing of data by the party requesting funds, and sensible predictions with regards to the failure of the start-up. Overconfident venture capitalists are more likely to: do a less and reduced information search, fund/seed fund inappropriate or unattractive business ventures, and have diminished motivation to self-improve (Zacharakis, A. L., & Shepherd, D. A., 2001)[xliii].

Economists work under conditions that lead to them being overconfident, especially regarding tasks where judgement is difficult, feedback on the event is hard to access or come by, and where effective institutional constraints are absent. The author believed that economists' exact degree of overconfidence as experts in their respective subject domains could be better assessed by encouraging economists to make precise forecasts and provide specific and detailed feedback. Such assessments on the degree of overconfidence of economists as experts in their respective subject domains may be a humbling experience for them and help them make significantly better decisions and forecasts in matters of public decision-making and public policy. This would restore or preserve trust in social scientists as experts in their respective subject domains. The author advises laypeople not to always take expert advice with a pinch of salt and anticipate myriad negative consequences (Angner, E., 2006)[xliv]. In the period following high market returns after accounting for lagged and simultaneous volatility association, there exists a statistically significant and material tendency for the market-wide turnover to surge. The levels of security turnover are reactive to market returns in the past. Small-cap stocks and stocks in which an individual holds a significant proportion of the shares had a noticeable overconfidence effect, and disposition affected trading. The volume of trades a market participant enters is dependent on past returns over a considerable period that the individual had earned/got (Statman, M., et al., 2006)[xlv].

People overestimate their own actual risk when they believe that they are less vulnerable than their peers. An illustration of it would be, Woloshin, S., et al. (1999),[xlvi] who found that women would significantly overestimate their chances of getting breast cancer and, at the same time, believe that they are at less risk than others to contract cancer. Motivation has a significant effect on overconfident judgements. When people have positive notions of an outgroup or ingroup before they gain more information about the ingroup, the predictions of the BIAS model will not hold, and any additional information provided to the person will not be informative. Overconfidence in an individual was related to personality (Schaefer, P. S., et al., 2004[xlvii]), gender (Pulford, B. D., & Colman, A. M., 1997)[xlviii], narcissism (Ames, D. R., & Kammrath, L. K., 2004)[xlix] and cognitive abilities (Kleitman, S., & Stankov, L., 2007)[l]. Across tasks, there exists a negative relationship between over-placement and overestimation. A person having more precise beliefs tends to be associated with less over placement and overestimation. The study concluded that over precision, overestimation and over placement are conceptually and empirically distinct and separate constructs and not different manifestations of an underlying construct (Moore, D. A., & Healy, P. J., 2008)[li].

An experimental study on the effect of overconfidence on the status of the individual was carried out, and its results suggested that individuals who are overconfident have a higher social status. Overconfident individuals are bestowed higher social status even when the actual performance for the task delegated was unknown. Overconfident individuals did not experience lowered status and were still viewed positively by others, even when the groups had access to objective and concise statistics on the actual performance of the task. It can be said that on net overconfidence of an individual would lead to status benefits within the group (Kennedy, J. A., et al., 2013)[lii]. A person's belief in intelligence as something that can be incrementally improved leads to less overconfidence than a belief that intelligence is fixed. The difference in the level of attention allocation leads to differences in overconfidence across individuals. There was a consensus that overconfidence was determined by self-motivation

(Dunning, D., 1995)[liii]. It was highlighted from the recent studies that were published prior to the article being published that non-motivational means were required to understand an individual's level of incompetence (Ehrlinger, J., et al., 2008)[liv], differences in access to information between the individual and others (Chambers, J. R., & Windschitl, P. D., 2004)[lv], dependence to enduring self-views (Ehrlinger, J., & Dunning, D., 2003)[lvi]. The study led to strong evidence that the overconfidence effect might be less universal than previously thought. An individual with the motivation to self-enhance oneself can, through behavioural biases, foster overconfidence (Ehrlinger, J., et al., 2016)[lvii].

DISCUSSION

The Theory of Reasoned Action considers the intention of the action as a direct and significant motivator for individuals to execute the action. Even though it is widely accepted that constraints such as lack of time, money, technical know-how and access to resources lead to a not-so-precise prediction about the individual's behaviour. The Theory of planned behaviour states that each action undertaken by an individual is the direct consequence of a plan the individual has created. Regret Theory states that investors are emotionally attached to their decisions and hold out even when the prospects do not look good. The Theory of mental accounting states that individuals compartmentalise their experiences, and at times these events would have an impact on their actions. Prospect theory states that individuals express varying intensity of emotions to similar gains and losses. It was found that individuals are less happy with prospective gains than they are stressed about equal losses; for example, an investment advisor would not be necessarily inundated with communication from his/her clients when he/she reported, say, a ₹200,000.00 gain in the client portfolio, but would be inundated with communication from his/her clients if he posted a ₹200,000.00 loss in the client's portfolio. Over/ under-reacting theory states that Investors get optimistic when the financial market goes up and assume that the financial market will continue to be bullish.

On the other hand, investors tend to become pessimistic amid bearish financial markets. Investors place too much significance on recent events and ignore historical data and the performance of the market, which results in excessive volatility on account of price-sensitive information being made public. The Theory of overconfidence states that individuals tend to evaluate themselves as being better than their abilities. This leads to them overestimating the precision and accuracy of the knowledge they possess and overestimating the precision and accuracy of the knowledge they possess relative to others. It is the congruent belief of the market participant in financial markets that they consistently and accurately time the market.

CONCLUSION

It was found that the theories consciously and unconsciously significantly impact how one perceives the investment vehicle and the individual's investment approach. This article does not cover all the relevant theories related to the investment decision and has focussed on seven that the author found to be a significant influence.

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