BEHAVIOURAL FINANCE (4th Semester)

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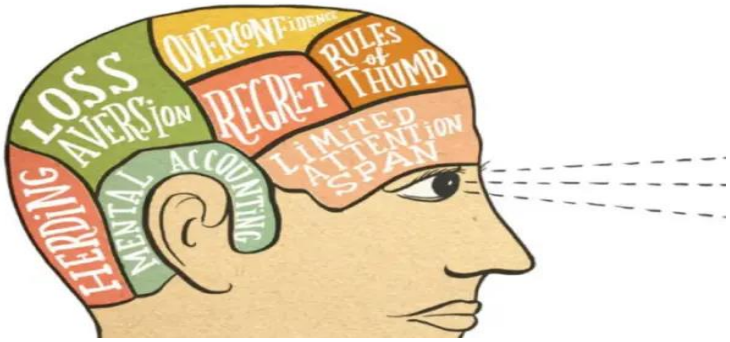


MODULE I

Introduction

It's hard not to think of the stock market as a person. It has moods that can turn from irritable to euphoric; it can also react hastily one day and make amends the next. But can psychology help us understand financial markets? Does analysing the mood of the market provide us with any hands-on strategies? Behavioural finance theorists suggest that it can.

Since the mid-1950s, the field of finance has been dominated by the traditional finance model developed by the economists of the University of Chicago.

Standard Finance theories are based on the premise that investor behaves rationally and stock and bond markets are efficient. Central assumption of the traditional finance model is that the people are rational. Cognitive error and extreme emotional bias can cause investors to make bad investment decisions, thereby acting in irrational manner.

Since the past few decade, field of Behavioural finance has evolved to consider how personal and social psychology influence financial decisions and behaviour of investors in general.

The finance field was reluctant to accept the view of psychologists who had proposed the Behavioural finance model. Behavioural finance was considered first by the psychologist Daniel Kahneman and economist Vernon Smith, who were awarded the Nobel Prize in Economics in 2002.

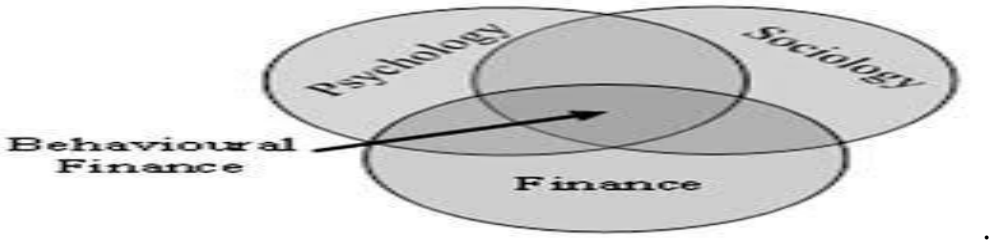
What is Behavioural Finance

Behavioural finance is a concept developed with the inputs taken from the field of psychology and finance. It tries to understand the various puzzling factors in stock markets to offer better explanations for the same.

To answer the increased number and types of market anomalies, a new approach to financial markets had emerged- the Behavioural finance.

Behavioural finance is defined as the study of the influence of socio-psychological factors on an asset's price. It focuses on investor behavior and their investment decision-making process.

It also includes the subsequent effects on the markets. It focuses on the fact that investors are not always rational, have limits to their self-control, and are influenced by their own biases



Foundations of Finance

Behavioural finance is the study of the influence of psychology on the behaviour of investors or financial analysts. It also includes the subsequent effects on the markets. It focuses on the fact that investors are not always rational, have limits to their self-control, and are influenced by their own biases.

Traditionally, economics and finance have focused on models that assume rationality. The behavioural insights have emerged from the application in finance and economics of insights from experimental psychology. Behavioural finance is relatively a new field which seeks to provide explanation for people's economic decisions. It is a combination of behavioural and cognitive psychological theory with conventional economics and finance

An underlying assumption of behavioural finance is that, the information structure and characteristics of market participants systematically influence the individual‘s investment decisions as well as market outcomes. Investor, as a human being, processes information using shortcuts and emotional filters. This process influences financial decision makers such that they act seemingly in irrational manner, and make suboptimal decision, violate traditional finance claim of rationality. The impact of this suboptimal financial decision has ramification for the efficiency of capital markets, personal wealth, and the performance of corporations. Irrational decision could be either due to processing of wrong information or interpretation with inconsistent decisions.

Behaviour finance focuses upon how investors interpret and act on information to make informed investment decisions. Investors do not always behave in a rational, predictable and an unbiased manner indicated by the quantitative models. Behavioural Finance places an emphasis upon investor behaviour leading to various market anomalies

Thus, behavioural finance can be described in the following ways:

•Behavioural finance is the integration of classical economics and finance with psychology and the decision-making sciences.

•Behavioural finance is an attempt to explain what causes some of the anomalies that have been observed and reported in the finance literature.

•Behavioural finance is the study of how investors systematically make errors in judgment or ‘mental mistakes’

Standard (Traditional) Finance

Standard finance is the body of knowledge built on the pillars of the arbitrage principles of Miller and Modigliani, the portfolio principles of Markowitz, capital assets pricing model (CAPM) of William Sharpe, Linter and Black, and option pricing model of Black and Scholes,

and Merton. (Statman,1999). This approach considers market to be efficient using models in which agents are _rational‘. Rationality means two things:

• First when they receive new information, agents update their beliefs correctly, in the manner described by Bayes‘s law.

• Second, given their beliefs, agents make choices that are normatively acceptable, in the sense that they are consistent with Savage‘s notion of Subjective Expected Utility Theory (SEU).

According to standard finance pricing model, people value wealth, the presumption is that investor act carefully and objectively while making financial decisions. Financial economists assumed that people behaved rationally, when making financial decisions. Researchers in psychology discovered that economic decisions are often made in a seemingly irrational manner.

Over past decade, the field of behavioural finance has evolved to consider how personal and social psychology influence financial decisions and the behaviour of financial market. According to Hirschey and Nofsinger ―Behavioural finance is study of cognitive errors and emotions in financial decisions‖. Three basic argument of EMH:

• Investors are rational and by implication securities are valued rationally.

• Investor takes careful account of all available information before making investment decisions.

• And decision makers always pursue self-interest.

Traditional models in finance can be caricatured as follows: ―”If investors are rational, and if markets are efficient, then investors ought to be behaving as follows.”

Evolution of Behavioural Finance

Standard finance theory is accepted world-wide from market level perspective. But in 1960s and 1970s, new wave in field of finance has been started by psychologist, study of heuristics found many biases and limit to cognitive resources, through examining economic decisions.

It was started by study of Slovic (1969,1972) studied stock brokers and investors. Slovic (1972) states the money Game: ―You are—face it—a bunch of emotions, prejudices, and twitches, and

this is all very well as long as you know it. Successful speculators do not necessarily have a complete portrait of themselves, warts and all, in their own mind, but they do have the ability to stop abruptly when their intuition and what is happening out there are suddenly out of kilter. If you don‘t know who you are, this is an expensive place to find out.‖

Recognition of the contribution that behavioural analysis is now significant in financial economics was reflected in 2002 with Awards of the Nobel Prize in economics to professor of psychology, Daniel Kahneman, where he detailed the heuristics and biases that occur when making decisions under uncertainty. The most important change in this direction happened, when their next research came into economics field, which is prospect theory (1979) for which they

received Noble Price in year 2002.This work has grown out of a series of experiments that have led to strong conclusions about the biases that affect how individuals take decisions and how they form preferences. Now main stream financial economist realised that investor can behave irrationally. Instead human brain often processes information using shortcuts and emotional filters.

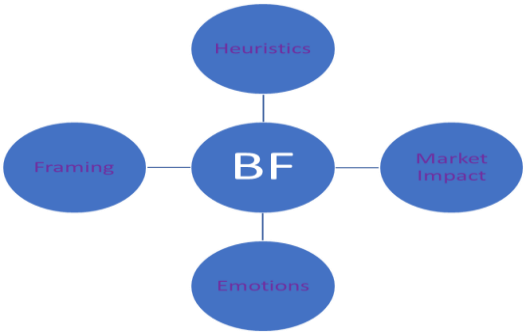
The American Finance Association held its first behavioural finance session at its 1984 annual meeting. In next year, Debondt and Thaler (1985) published a behavioural based paper on investors‘ overreaction to news. They explained investor Overreaction Hypothesis opposes to EMH. They rejected_regression to mean of price‘, operating in extreme highs and lows balance each other.It is followed by Shefrin and Statman (1985) publication of paper on Disposition effect. They put it as Disposition effect that suggests that investors relate to past winners differently than past losers. Odean applied the disposition effect in vivo context. In year 2000, Shefrin described how these psychology papers influenced the field of finance.

The beginning of this psychology based finance research coincided with the start of many empirical findings that raised doubt on fundamental of standard finance theory & EMH. Behavioural finance encompasses research that drops the traditional assumption of expected utility maximization with rational investors in efficient market.

Nature of Behavioural Finance

Four Key Themes- Heuristics, Framing, Emotions and Market Impact characterized the Field. These themes are integrated into review and application of investments, corporations, markets, regulations, and educations-research.

- Heuristics
- Framing
- Emotions
- Market Impact



Heuristics: Heuristics are referred as rule of thumb, which applies in decision making to reduce the cognitive resources to solve a problem. These are mental shortcuts that simplify the complex methods to make a judgment. Investor as decision maker confronts a set of choices within certainty and limited ability to quantify results. This leads identification and understanding of all heuristics that affect financial decision making Some of heuristics are representativeness, anchoring & adjustments, familiarity, overconfidence, regret aversion, conservatism, mental accounting, availability, ambiguity aversion and effect. Heuristics help to make decision.

Framing: The perceptions of choices that people have are strongly influenced by how these choices are framed. It means choices depend on how question is framed, even though the

objective facts remain constant. Psychologists refer this behaviour as a' frame dependence'. As Glaser, Langer, Reynders and Weber (2007) show that investors forecast of the stock market depends on whether they are given and asked to forecast future prices or future return. So it is how framing has adversely affected people's choices.

Emotions: Emotions and associated human unconscious needs, fantasies, and fears drive much decision of human beings. How these needs, fantasies, and fears influence financial decision? Behavioural finance recognises the role Keynes's "animal spirit" plays in explaining investor choices, and thus shaping financial markets (Akerlof and Shiller, 2009). Underlying premises is that our feeling determine psychic reality affect investment judgment.

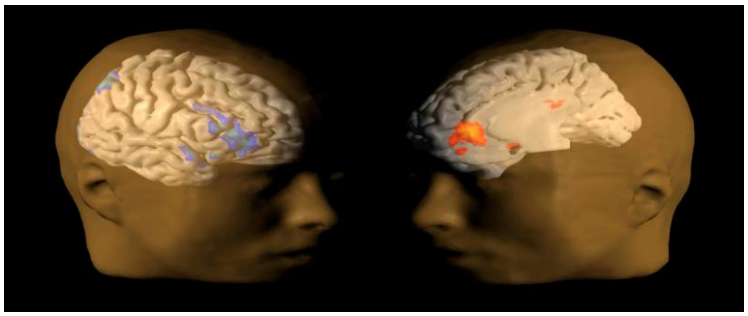
Market Impact: Do the Cognitive errors and biases of individuals and groups of people affect market and market prices? Indeed, main attraction of behavioural finance field was that market prices did not appear to be fair. How market anomalies fed an interest in the possibility that they could be explained by psychology? Standard finance argues that investors' mistakes would not affect market prices because when prices deviate from fundamental value, rational investor would exploit the mispricing for their own profit. But who are those who keep the market efficient? Even institutional investor exhibits the inefficiency. And other limit to this is arbitrage.(Shleifer and Vishny, 199742; Barberies and Thaler,2003)43. This prevents rational investor from correcting price deviations from fundamental value. This leaves open the possibility that correlated cognitive errors of investor could affect market prices.

Similarity between Standard Finance and Behavioural Finance

Traditional Finance incorporates no element of human psychology; Behavioural Finance usually incorporates almost no elements, relying on economic theory. Finance institution place people in complex settings that are best described in terms of information, incentives, and actions that can be taken –building block of economic theory.

Thus, behavioural studies include only small elements of psychology, integrated into economic theory needed to understand the institution itself. In this way, Behavioural Finance adds only wrinkle to standard finance, which is to alter some of one or more facets of an assumption which is the very foundation of economic theory: how do individual behave**?**

Differences between Standard Finance and Behavioural Finance



Traditional Finance	Behavioural Finance
1. Traditional finance assumes that people process data appropriately and correctly 2. Traditional Finance presupposes that people view all decision through the transparent and objective lens of risk and return 3. Traditional finance assumes that people are guided by reasons and logic and independent judgment 4. Traditional finance argues that markets are efficient, implying that the price of each security is an unbiased estimate of its intrinsic value.	1. Behavioural finance recognizes that people employ imperfect rules of thumb (heuristics) to process data which induces biases in their belief and predisposes them to commit errors. 2. Behavioural finance postulates that perceptions of risk and return are significantly influenced by how decision problem is framed 3. Behavioural finance, recognizes that emotions and herd instincts play an important role in influencing decisions. 4. Behavioural finance contends that heuristic-driven biases and errors, frame dependence, and effects emotions and social influence often lead to discrepancy between market price and fundamental value.

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SCOPE OF BEHAVIOURAL FINANCE

The scope of behavioural finance can be visualized by examining its role in investment decision-making if individuals as well as corporate. The scope areas of behavioural finance are discussed as follows:

a) To understand the reasons of market anomalies: Though standard finance theories are able to justify the stock market to a great extent, still there are many market anomalies that take place in stock markets, including creation of bubbles, the effect of any event, calendar effect on stock market trade etc. These market anomalies remain unanswered in standard finance but behavioural finance provides explanation and remedial actions to various market anomalies

b) To identify investor's personality: An exhaustive study of behavioural finance helps in identifying the different types of investor personality. Once the biases of the investor's actions are identified, by the study of investor's personality, various new financial instruments can be developed to hedge the unwanted biases created in the financial markets.

c) To enhance the skill set of investment advisors: This can be done by providing better understanding of the investor's goals, maintaining a systematic approach to advise, earn the expected return and maintain a win-win situation for both the client and the advisor.

d) Helps to identify the risks and develop hedging strategies: Because of various anomalies in the stock markets, investments these days are not only exposed to the identified risks, but also to the uncertainty of the returns

e) Behavioural finance provides explanation to various corporate activities.

Significance of Behavioural Finance

The Boston-based Dalbar in its 2007 report "Quantitative Analysis of Investor Behaviour" found that in the past 20 years the American S&P 500 Index returned on average 11.8% pa, while the average investor earned 4.3% pa – substantially lower returns.

The main reasons for the variance were the tendency for the average investor to sell after a stock price has fallen a long way and then buy back in to the market after it has already risen a large amount. Effectively the average investor is buying high and selling low, and thus making losses.

Behavioural Finance seeks to account for this behaviour, and covers the rationality or otherwise of people making financial investment decisions. Understanding Behavioural Finance helps us to avoid emotion-driven speculation leading to losses, and thus devise an appropriate wealth management strategy.

Behavioural Finance covers "individual and group emotion, and behaviour in markets. The field brings together specialists in personality, social, cognitive and clinical psychology; psychiatry; organizational behaviour; accounting; marketing; sociology; anthropology; behavioural economics; finance and the multidisciplinary study of judgment and decision making".

Market Strategies

Much of what is known about finance and investments has come from the study of economics. Classic economics assumes that people are rational when they make economic or financial decisions. "Rational" means that people respond to incentives because their goal is always to maximize benefit and minimize costs. Not everyone shares the same idea of benefit and cost, but in a market with millions of participants, there tends to be some general consensus.

This belief in rationality leads to the idea of market efficiency. In an efficient market, prices reflect "fundamental value" as appraised by rational decision makers who have access to information and are free to choose to buy or sell as their rational decisions dictate. The belief in

efficiency assumes that when prices do not reflect real value, people will notice and will act on the anomaly with the result that the market "corrects" that price.

People are not always rational, however, and markets are not always efficient. Behavioural finance is the study of why individuals do not always make the decisions they are expected to make and why markets do not reliably behave as they are expected to behave. As market participants, individuals are affected by others' behaviour, which collectively affects market behaviour, which in turn affects all the participants in the market.

As an individual, you participate in the capital markets and are vulnerable to the individual and market behaviours that influence the outcomes of your decisions. The more you understand and anticipate those behaviors, the better your financial decision making may be.

Expected Utility Theory

Expected utility is an economic term summarizing the utility that an entity or aggregate economy is expected to reach under any number of circumstances. The expected utility is calculated by taking the weighted average of all possible outcomes under certain circumstances, with the weights being assigned by the likelihood, or probability, that any particular event will occur.

Understanding Expected Utility

The expected utility of an entity is derived from the expected utility hypothesis. This hypothesis states that under uncertainty, the weighted average of all possible levels of utility will best represent the utility at any given point in time.

Expected utility theory is used as a tool for analysing situations where individuals must make a decision without knowing which outcomes may result from that decision, i.e., decision making under uncertainty. These individuals will choose the action that will result in the highest expected utility, which is the sum of the products of probability and utility over all possible outcomes. The decision made will also depend on the agent's risk aversion and the utility of other agents.

This theory also notes that the utility of a money does not necessarily equate to the total value of money. This theory helps explains why people may take out insurance policies to cover themselves for a variety of risks. The expected value from paying for insurance would be to lose out monetarily. But, the possibility of large-scale losses could lead to a serious decline in utility because of diminishing marginal utility of wealth.

Key Takeaways

- Expected utility refers to the utility of an entity or aggregate economy over a future period of time, given unknowable circumstances.
- It is used to evaluate decision-making under uncertainty.
- It was first posited by Daniel Bernoulli who used it solve the St. Petersburg Paradox

Risk Attitude

Individual willingness to take risks is decisive for financial investments. Financial assets are characterized by a variety of expected revenues along with different risks. Portfolio theory predicts that investors who are less risk averse will have higher shares of risky assets, such as stocks, in their portfolios. This theoretical link has been used in a number of empirical studies to construct measures of risk aversion out of the portfolio choice of individuals (e.g. Friend and Blume, 1975; Siegel and Hoban, 1982; Riley and Chow, 1992; Bucciol and Miniaci, 2011). Measuring this theoretical relationship empirically has been the objective of several papers in the last years (e.g. Barsky et al., 1997; Kimball et al., 2008; Kapteyn and Teppa, 2011; Dohmen et al., 2011; Barasinska et al., 2012). This literature uses survey data and measures the risk attitudes of the interviewed persons either by direct questions about their behaviour and attitudes or by hypothetical decision problems involving income and risk, e.g. about the choice between jobs or the share of money invested in risky assets after a lottery win.

All studies find a statistically significant correlation between risk attitudes and portfolio choice. Standard models in economics assume that individuals are endowed with stable risk attitudes. It is conceivable, however, that investments in risky assets also affect risk attitudes. Malmendier and Nagel (2011) show that macroeconomic shocks experienced over the course of an individual's life affect the willingness to take financial risks. Their results suggest that personal experiences exert an influence on personal attitudes. Heaton and Lucas (2000) find that the presence of background risks, as labour income and entrepreneurial income, influences portfolio allocation. Background risk in turn likely changes over time. Similarly, Guiso and Paiella (2008) demonstrate that the consumer's environment affects risk aversion. Individuals who are more likely to face income uncertainty or to become liquidity constrained exhibit a higher degree of absolute risk aversion. 3

Individuals' risk attitudes may be related to endogenous adaptation for several reasons. First, holding financial assets means confrontation with risky decisions new to the individual. Second, making risky decisions implies dealing with uncertainty and may contribute to learning in portfolio context. Learning by doing is a pervasive form of personal development which can be applied to attitudes as well as skills (see

Bowles 1998). With respect to portfolio choice, this may include the accumulation of finance-specific human capital and an increasing confidence in own skills (Westhead and Wright 1998; Ucbasaran, Wright and Westhead 2008). Thirdly, changes in willingness to take risks in financial matters might be driven by changes in the perception of the risky choices and outcomes that individuals experienced during former financial market participation.

Therefore, we cannot rule out that asset holding itself affects risk attitudes. Most studies on the nature of the relationship between risk attitudes and asset holding are based on common sense or casual observation of behavioural differences between risk averse and risk seeking individuals. The aim of this paper is to shed light on the nature of the relationship between risk aversion and asset holding. Therefore, in this paper we contribute to the existing literature in ruling out that investment decisions affect risk attitudes. We use data from the German Socio Economic Panel which allow addressing the concern for reverse causality. As an identification strategy, we use information on individuals, who did not invest in the asset under investigation before risk attitudes were measured. That is to identify the effect of risk attitudes on investment behaviour and not vice versa, we rule out that individuals owned the respective financial investment before risk attitudes were measured. If risk attitudes are measured in period t1, in each regression we exclude individuals who owned the specific investment in the previous periods, $t \leq t1$. Individuals are classified as investors if they owned the investment in $t > t1$. Thus, we identify an investor if an individual did not own the investment up to t1 but in one of the subsequent years. As measure of risk attitude we employ 4 a self- assessment question, while indicator variables on investments in several asset forms function as dependent variables. We find that risk attitudes play a decisive role in the financial investment decisions of households. Furthermore, results reveal that if endogenous adaption of risk attitudes from holding assets in previous years is not taken into account, the impact of risk attitudes on holding risky assets is upward biased

Allais Paradox

The Allais paradox is a choice problem designed by Maurice Allais (1953) to show an inconsistency of actual observed choices with the predictions of expected utility theory.

The Allais paradox arises when comparing participants' choices in two different experiments, each of which consists of a choice between two gambles, A and B. The payoffs for each gamble in each experiment are as follows:

EXPERIMENT - 1				EXPERIMENT - 2			
Gamble 1A		Gamble 1B		Gamble 2A		Gamble 2B	
Winnings	Chance	Winnings	Chance	Winnings	Chance	Winnings	Chance
$1 million	100%	$1 million	89%	Nothing	89%	Nothing	90%
		Nothing	1%	$1 million	11%		
		$5 million	10%				

Several studies involving hypothetical and small monetary payoffs, and recently involving health outcomes, have supported the assertion that when presented with a choice between 1A and 1B, most people would choose 1A. Likewise, when presented with a choice between 2A and 2B, most people would choose 2B. Allais further asserted that it was reasonable to choose 1A alone or 2B alone.

- ✓ However, that the same person (who chose 1A alone or 2B alone) would choose both 1A and 2B together is inconsistent with expected utility theory. According to expected utility theory, the person should choose either 1A and 2A or 1B and 2B.

- ✓ The inconsistency stems from the fact that in expected utility theory, equal outcomes (e.g. $1 million for all gambles) added to each of the two choices should have no effect on the relative desirability of one gamble over the other; equal outcomes should "cancel out". In each experiment the two gambles give the same outcome 89% of the time (starting from the top row and moving down, both 1A and 1B give an outcome of $1 million with 89% probability, and both 2A and 2B give an outcome of nothing with 89% probability). If this 89% 'common consequence' is disregarded, then in each experiment the choice between gambles will be the same – 11% chance of $1 million versus 10% chance of $5 million.

After re-writing the payoffs, and disregarding the 89% chance of winning — equalizing the outcome — then 1B is left offering a 1% chance of winning nothing and a 10% chance of winning $5 million, while 2B is also left offering a 1% chance of winning nothing and a 10% chance of winning $5 million. Hence, choice 1B and 2B can be seen as the same choice. In the same manner, 1A and 2A can also be seen as the same choice, i.e:

EXPERIMENT - 1				**EXPERIMENT - 2**			
Gamble 1A		Gamble 1B		Gamble 2A		Gamble 2B	
Winnings	**Chance**	**Winnings**	**Chance**	**Winnings**	**Chance**	**Winnings**	**Chance**
$1 million	89%	$1 million	89%	Nothing	89%	Nothing	89%
$1 million	11%	Nothing	1%	$1 million	11%	Nothing	1%
		$5 million	10%			$5 million	10%

Building Blocks

This unit is designed to help you understand the basic building blocks of sound financial management–the steps you need to complete, or at least consider, before you begin an investment program.

Visualizing the financial management building blocks in a pyramid, the wealth protection blocks on the bottom of the pyramid form a strong, secure foundation and provide crucial stability for the wealth accumulation and distribution blocks on top.

Each building block relies upon the strength and stability of the personal finance strategies used in the blocks below it. Decisions for one building block may have a definite impact on options available in adjacent blocks.

For example, if you overuse credit, you may not qualify for a mortgage on a home. As you move up the pyramid, your financial life becomes more complex. This complexity, along with changes in your life, may require that you re-evaluate and change earlier strategies.

Working from the bottom to the top of the pyramid, we will discuss 11 key components of a successful financial plan that make up the blocks of the pyramid. We will discuss, in turn, the components of wealth protection, accumulation, and distribution.

- ✓ This chapter discusses the biases that result in irrational financial decisions caused by faulty cognitive reasoning or reasoning influenced by emotions. Behavioral biases, regardless of their source, might cause decisions to deviate from the assumed rational decisions of traditional finance.
- ✓ Behavioural biases are classified as either cognitive errors or emotional biases. That distinction is not only simple and easily understood, but it also provides a useful framework for understanding how Behavioural Investor Types (BITs) are created.
- ✓ Cognitive biases are classified into two categories: the first category contains "belief perseverance" biases and the second category has to do with how people process information either illogically or irrationally in financial decision making. Emotional biases can cause investors to make suboptimal decisions. That is because emotions are rarely identified and recorded in the decision-making process.
- ✓ Cognitive errors are statistical, information processing, or memory errors that result in faulty reasoning and analysis. The individual might attempt to follow a rational decision making process but fail to do so because of cognitive errors.
- ✓ However, emotional biases stem from impulse, intuition, and feelings and might result in personal and unreasonable decisions

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MODULE II

Behavioural Finance has two building blocks:

a) Market Inefficiency (Limits to Arbitrage)

b) Cognitive Psychology

MARKET INEFFICIENCY (LIMITS TO ARBITRAGE)

The theory of limited arbitrage shows that if irrational traders cause deviations from fundamental value, rational traders will often be powerless to do anything about it. Arbitrage is an investment strategy that offers riskless profits at no cost. The hypothesis that actual prices reflect fundamental values is the Efficient Markets Hypothesis (EMH). In an efficient market, there is "no free lunch": No investment strategy can earn excess risk-adjusted average returns, or average returns greater than are warranted for its risk.

Behavioural finance argues that some features of asset prices are most plausibly interpreted as deviations from fundamental value, and that these deviations are brought about by the presence of traders who are not fully rational. Both "prices are right" and "there is no free lunch" are true in an efficient market; "no free lunch" can also be true in an inefficient market.

Arbitrage is indeed limited. The evidence of mispricing is simultaneously evidence of limited arbitrage, and it is not hard to see why arbitrage might be limited in this case. The price of the share changes even though its fundamental value does not. The soft spots of investment practice are the claims of active managers that they can beat the market. Many investment professionals have embraced behavioral finance as an ally against standard finance. Finance has no tests powerful enough to distinguish market inefficiency from bad asset-pricing models. The best practice is to accept market efficiency in the beat-the-market sense and reject it in the rational-prices sense.

The BAPM (Behavioral Asset-Pricing Model) features the market interaction of two groups of traders, namely, information traders (ones who populate the standard CAPM; free of cognitive

errors and have mean-variance preferences) and noise traders (live outside the CAPM, commit cognitive errors, and do not have strict mean-variance preferences). All asset-pricing models are versions of the old reliable supply-and-demand model. Demand and supply are determined by utilitarian characteristics (such as production costs and prices of substitutes) and value-expressive characteristics (such as tastes). For CAPM, demand and supply are determined by the utilitarian beta. However, the characteristics of BAPM are utilitarian and value-expressive traits. Demand-side preferences for utilitarian and value-expressive characteristics are not sufficient for price differentials. The supply side also matters.

Meanwhile, portfolios recommended by financial advisors commonly have a structure that is very different from the standard finance structure of mean-variance portfolios. Mean-variance investors evaluate portfolios as a whole; they consider covariance between assets as they construct their portfolios; also have consistent attitudes toward risk; always averse to risk. Behavioral investors consider building portfolios as pyramids of assets, layer by layer. The layers are associated with particular goals and particular attitudes toward risk.

COGNITIVE PSYCHOLOGY

Psychology is the second building block of behavioral finance. Behavioral economists typically turn to the extensive experimental evidence compiled by cognitive psychologists on the biases that arise when people form beliefs, and on people's preferences, or on how they make decisions, given their beliefs. The following portion discusses the recent development of psychology theories, which are directly related to behavioral finance field.

Beliefs: In terms of people's beliefs, there are several psychological factors that affect investors' decision-making process:

(1) Overconfidence: People are poorly calibrated when estimating probabilities. The confidence intervals people assign to their estimates of quantities are far too narrow. Overconfidence may in part stem from two other biases: self-attribution and hindsight bias. For example, investors might become overconfident after several quarters of investing success.

(2) Optimism and Wishful Thinking: Most people display unrealistically rosy views of their abilities and prospects. Over 90% people surveyed predict that tasks will be completed much

sooner than they actually are.

(3) Representativeness: Much of the time, representativeness is a helpful heuristic, but it can generate some severe biases. Representativeness also leads to another bias, sample size neglect. Sample size neglect means that in cases where people do not initially know the data-generating process, they will tend to infer it too quickly on the basis of too few data. The belief that even small samples will reflect the properties of the parent population is sometimes known as the "law of small numbers"; in situations where people do know the data-generating process in advance, the law of small numbers generates a gambler's fallacy effect.

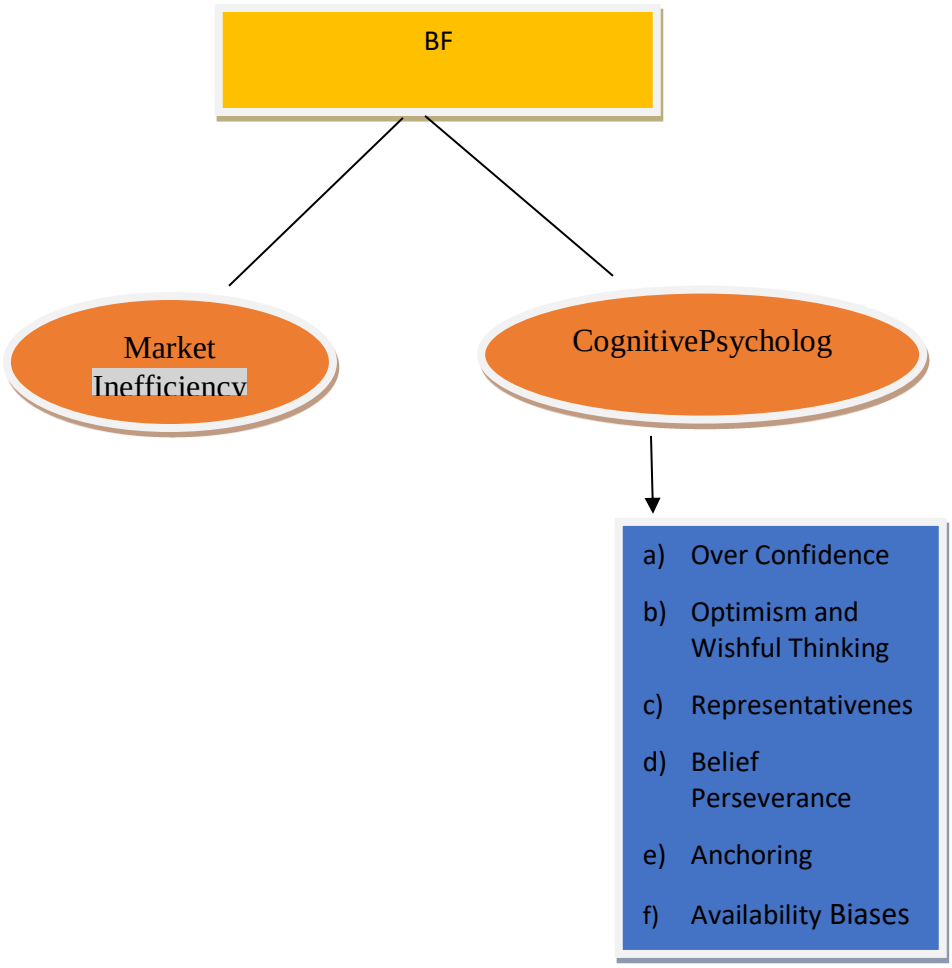
(4) Belief Perseverance: Once people have formed an opinion, they cling to it too tightly and for too long. People are reluctant to search for evidence that contradicts their beliefs; second, even if they find such evidence, they treat it with excessive scepticism.

(5) Anchoring: When forming estimates, people often start with some initial, possibly arbitrary value, and then adjust away from it. People "anchor" too much on the initial value.

(6) Availability Biases: When judging the probability of an event, people often search their memories for relevant information. While this is a perfectly sensible procedure, it can produce biased estimates because not all memories are equally retrievable or "available".

Preferences: An essential ingredient of any model trying to understand asset prices or trading behaviour is an assumption about investor preferences. The vast majority of models assume that investors evaluate gambles according to the expected utility framework. Utility is defined over gains and losses rather than over final wealth positions, an idea first proposed by Markowitz. Specifically, prospect theory has no aspirations as a normative theory: it simply tries to capture people's attitudes to risky gambles as parsimoniously as possible. Prospect theory could explain why people made different choices in situations with identical final wealth levels. This illustrates an important feature of the theory, namely that it can accommodate the effects of problem description, or of framing. Such effects are powerful. No normative theory of choice can accommodate such behaviour since a first principle of rational choice is that choices should be independent of the problem description or representation. The classic experiment described by Ellsberg (1961) suggests that people do not like situations where they are uncertain about the

probability distribution of a gamble. Such situations are known as situations of ambiguity, and the general dislike for them, as ambiguity aversion.



THEORETICAL FRAMEWORK OF BEHAVIOURAL BIASES

Psychologists have documented systematic patterns of bias on how people form views and take decisions. These biases influence how decision makers form investment opinions, and then how investors take investment decisions.

Information processing may be correct but individual tend to make less rational decisions using that information. Nevertheless, most of the financial decisions are driven by people's emotions and associated universal human unconscious needs, fears and psychological traits.

Thus bias arises and it can be divided into (i) Prospect theory and Framing (ii) Heuristics and

(iii) other biases.

These biases sit deep within our psyche and as fundamental parts of human nature; they affect all types of investors, both professionals as well as private.

The heuristic decision process by which the investors find things out for themselves usually by trial and error, leads to the development of rules of thumb. These decision are those with which humans attempt to make mental shortcuts. These practices however can result in poor decision results that also apply to individual investment decision process.

When individuals are faced with complex judgments involving statistical probability, frequency or incomplete information, many individuals usually utilise limited number of heuristics that reduce the decision to simper task. Psychological biases or heuristics that can affect decision making are explained in following section

(i) FRAME DEPENDENCE AND PROSPECT THEORY:

FRAMING

The term Frame dependence means the way people behave depends on the way that their decision problems are framed. There is much evidence that variation in the framing of options, in terms of gains and losses, yield systematically different preference.

Framing is the way in which a question is structured with regard to the issue being evaluated. Economists argue that framing is transparent; implying that investors can see through all the different ways cash flows might be described. According to Modigliani and Miller approach ―if you transfer a dollar from your right pocket to your left pocket, you are no wealthier‖. Franco put it as ―Frame independent investors pay attention to changes in their total wealth‖.

In reality, behaviour is frame dependent. This means that, the form used to describe a problem has bearing on decision making. Frame dependence stems from mix of cognitive and emotional factors. The Cognitive aspects relate to how people organise information mentally, in a coding losses and profit**s**

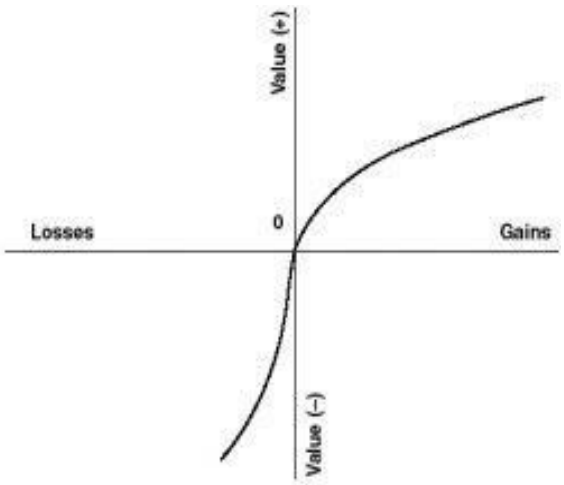
PROSPECT THEORY:

Prospect theory has done more to bring psychology into the heart of economic analysis than any other approach. It theorizes how an individual or group of individuals behaves, on average, in a world of uncertainty.

The prospect theory is proposed by Daniel Kahneman and Tversky. They describe how people frame and value decision involving uncertainty. According to Prospect theory, people look at choices in terms of potential gains or losses in relation to specific reference point, which is often a purchase price. People feel more strongly about the pain from loss then the pleasure from equal gain.

Prospect theory is a representation of the statistical average of individual behaviours. Thus, there will be deviations from the mean. For example, a subsample of individuals behaving in a consistently deviant fashion can help explain important aspects of choice behaviour, whether or not such behaviour is consistent with the conventional wisdom or prospect theory

Prospect theory and the scales [used in this theory] should be viewed as an approximate, incomplete, and simplified description of the evaluation of risky prospects. Although the properties of v and n summarize a common pattern of choice, they are not universal: the preferences of some individuals are not well described by an S-shaped value function and a consistent set of decision weights



Note: This figure presents a visual representation of prospect theory and shows an S shaped value function.

The above figure shows value function- this is prospect theory‘s equivalent of classical economic utility function. However, it is defined over gains and losses around a reference point. The reference point is determined by the subjective feelings of the individual. It is the individuals‘ point of reference, the benchmark against which all comparison is made. Value function is concave for gains and convex for losses. This means that value function is steeper for losses than for gains- this is referred as loss aversion.

Three unique features of prospect theory:

•Prospect theory assumes that choice decisions are based upon a subjectively determined reference point independent of the decision maker‘s state of wealth.

•Subjective reference points introduce a frame to a prospect, which affects choice behaviour.

•A kink exists at the reference point of prospect theory‘s value function, assuming individuals weight losses at above twice that of gains.

Individuals tend to think in terms of gains and losses rather than a state of wealth. For example, if there are two people, one of them learns that his wealth has gone from 1 million to 1.3 million while other one learns that his wealth gone down from 5 million to 4.5 million. Most of the

people will say that the first guy is happier. However, if we look in terms of finance, the second person should be better pay off in terms of total wealth.

Mental Accounting:

Mental accounting describes the tendency of people to place particular events into different mental accounts based on superficial attributes. People separate money and financial risk into mental accounts‘ putting wealth into various buckets. They place their money into separate parts on a variety of subjective criteria, like the source of money, and intend of each account, which has an often irrational and detrimental effect on their consumption decision and other behaviours. For example, investors may feel free to take risk in their own account rather than their children. Mental accounting manifests itself in investors‘ behaviour in following ways:

•Investors have a tendency to ride losers as they are reluctant to realize losses. Mentally, they treat unrealized _paper loss‘ and realised _loss‘ differently, although from a rational economic point of view they are same.

•Investors often integrate the sale of losers so that the feeling of regret is confined to one time period.

•Investors tend to stagger the sale of winners over time to prolong favourable experience.

•People are more venturesome with money received as bonus but very conservative with money set aside for children ‘s education.

•Investors often have irrational preference for stocks paying high dividends, because they don‘t mind spending the dividend income, but are not inclined to sell a few shares and _dip into the capital‘.

So, _mental accounting‘refers to how individuals mentally integrate different parts of their wealth. Even over monitoring of portfolio is the result of this biasness. That reflects the way in which investors assign sums of money to different actual or notional accounts for different purposes with varying degrees of risk tolerance upon the importance of achieving the particular objective.

Loss Aversion:

Loss Aversion is a pervasive phenomenon in human decision making under risk and uncertainty, according to which people are more sensitive to losses than gains. A typical financial example is in investor‘s difficulty to realize losses. This phenomenon is called _Get-evenities‘that is, people hope that markets will work in their advantage and they will be able to terminate their investment without incurring losses.

The human tendency to take extreme measures to avoid loss leads to some behaviour that can inhibit investment success. So the human attitude to risk and reward can be very complex and subtle, which changes over time and in different circumstances

Disposition Effect:

The disposition effect refers to the pattern that people avoid realizing paper losses and seek to realize paper gains. The disposition effect manifests itself in lots of small gains being realized, and few small losses. Regret aversion and pride seeking behaviour can cause investors to be predisposed to selling winners too early and riding losers too long. This is referred as Disposition effect. People dislike incurring losses much more than they enjoy making gains, and people are willing to gamble in the domain of losses, investor will hold onto stocks that have lost values and will be eager to sell stocks that have risen in value. They called this the disposition effect.

(ii) HEURISTICS AND BIASES:

Representativeness:

Representative heuristic is a judgment based on stereotypes. It is also referred as drawing conclusions from little data. Representativeness refers to the tendency to form judgment based on stereotypes. For example, you may form an opinion about a student to perform academically in college on the basis of how he has performed academically in school. While representativeness may be a good rule of thumb, it can also lead people astray.

Representative bias occurs when it is required to assess the probability of an object. A belonging to B. The heuristic rule says that if object A is highly representative of class B, the probability of

A originating from B is judged as high, and vice versa. Representativeness refers to our tendency to evaluate how likely something is with reference to how closely it resembles something rather than using probabilities.

Actions which is explaining representativeness bias:

- Investors often try to detect patterns in data which is random number.
- Investors extrapolate past returns which actually follow randomness.
- Investors may be drawn to MFs with good track record because such funds are believed to be representative of well –performing funds. They forget that even unskilled manager can earn higher return by chance.
- Investors are overly optimistic about past winners.
- Good companies -good stock syndrome.

This heuristic leads people to judge the stock market changes as bull or bear market without valuing that the likelihood that particular sequences happen rarely. In the same way it could lead the investors to be more optimistic about the past winners and more pessimistic about the past losers which may assume that a recent trend in price movements will definitely continue into the future. It may also result in individual investors developing too much attention to popular stocks that have recently been performing well.

Representativeness can cause investors to overreact to new information, i.e., investors give new information too much weight in forming their expectation about future.

Overconfidence:

Confidence can be described as the ―belief in oneself and one‘s abilities with full conviction‖ while ―overconfidence can be taken one step further in which overconfidence talks this self – reliant behaviour to an extreme. As a human being people have tendency to overestimate their skills and predictions for success.

Overconfidence stems partly from illusion of knowledge. The human mind is perhaps designed to extract as much information as possible from what is available.

They may not be aware that the available information is not adequate to develop an accurate forecast in uncertain situations. Investment with overconfidence, can lead to inappropriate or risky investments. Overconfidence causes investors to overestimate their knowledge, underestimate risks, and exaggerate their ability to control events.

Overconfidence will result in:

- Mistaking luck for skill
- Too much risk
- Too much trading

So people tend to overestimate their belief and ability. Overconfidence suggests that investors overestimate their ability to predict market events, and because of this they often take risk without actually receiving proportionate returns

SAB & Confirmation Bias:

Self-attributionbias theory is attributed to Heider , who observed how people tend to attribute successful outcome from decisions to their own actions and bad outcome to external factors.

SAB emerge from two important human traits: Self-protecting and Self enhancement. Self-protecting, which is the desire to have positive self-image and self enhancement, which is the desire for others to see us positively.

It can be difficult to encounter something or someone without having pre-conceived opinion. This first impression can be hard to shake because people also tend to selectively filter any pay more attention to information that supports their opinions, while ignoring or rationalizing the rest. This type of selective thinking is often referred to as the confirmation bias.

Confirmation bias is the people‘s desire to find information that agrees with their existing view. Any information that conflicts with the null is ignored, whilst information that reinforces the null is over-weighted. In investing, the confirmation bias suggests that an investor would be more likely to look for information that supports their original ideas about an investment rather than seek out information that contradicts it. Due to this kind of investor‘s tendency, it often results into wrong decision

Availability Bias:

According to availability bias, people tend to base their decisions more on recent information rather than any detailed study of past events and thereby become biased to that latest news.

In investment world, people often made decisions based on the information readily available and do not take pain to go for any detailed analysis. When people are asked to assess the frequency of a class or the probability of an event, they do so by the ease with which instances or occurrences can be brought to mind.

This heuristic is used to evaluate the frequency or likelihood of an event on the basis of how quickly instances or association come to mind. Availability is a cognitive heuristic in which a decision maker relies upon knowledge that is readily available rather than examine other alternatives or procedures.

Cognitive Dissonance:

A form of self-deception stems from the fact that people seek consistency. The mental discord, that arises when the memory of an event conflicts with a positive self-perception or conflict between perception and reality. Cognitive Dissonance is the mental conflicts that people experience when they are presented with evidence that their belief or assumptions are wrong; people have an incredible degree of self-denial. They will effectively jump through mental hoops in order to reduce or avoid inconsistencies.

Conservatism:

Conservatism is a tendency to cling tenaciously to a view or a forecast. Once the position has been stated most people find it very hard to move away from the view. When movement does occur it is only very slow, which creates under-reaction to events.

Another bias is conservatism, which arises when it is widely recognised that the available data are insufficient to support strong conclusions. In this case, it is a common error to place too little weight on the available evidence, or even to disregard it and to rely solely on prior expectations. In this way, individuals demonstrate a reluctance to search for evidence that contradict their previous views, because they are reluctant to change their own judgment.

When things have changed, people tend to be slow to adjust to the changes. In other words, they prefer to stay on the ways things have normally been. This is what conservatism is all about.

Such bias would give rise to momentum in stock market return. The investors take very conservative approach to changing their minds after taking a decision, despite new contradictory information. For example, investors also tend to look at short term investment performance and believe it will continue, rather than lake a long view

Regret Aversion:

Regret is the emotion individual feels if they can easily imagine having acted in a way that would have led to a more favourable outcome. Classical e.g. of it is fall in price of investment. Regret is the emotion experienced for not having made the right decision. It is the feeling of responsibility for loss. It is also related with preference for dividend in financing consumer expenditures, because selling a stock that may rise in the future carries a huge potential for regret.

Regret avoidance is the tendency to avoid actions of interest that could create discomfort over prior decisions. This explained why investors defer selling losing positions. In order to avoid the stress associated with admitting a mistake, the investor holds onto the losing position and hopes for recovery.

At the same time, they sell the stock that have gone up in order to feel regret if the prices later fall. This regret avoidance can also be explained when individuals tend to have more regret over the same losses in small stocks rather than the good ones. As buying a small stocks would be more of their own decisions which is _out of favour‘ to others. When investors lost on small stocks, they feel guiltier than losing on larger ones. Hence small stocks require higher rate of return to make a buying decisions.

Anchoring and Adjustment:

Anchoring can be explained as the tendency to attach or _anchor‘ our thought to a reference point even though it may have no logical relevance to the decision at hand. Although it may seem an unlikely phenomenon, anchoring is fairly prevalent in situation where people are dealing with concepts that are new or novel.

After forming an opinion, people are often unwilling to change it, even though they receive new information that is relevant. Suppose that investors have formed and opinion that company X has above average long term earnings prospect. Suddenly, X reports much lower earning that expected. Thanks to anchoring (conservatism), investors will persist in the belief that the company is above average and will not react sufficiently to bad news.

Aversion to Ambiguity: (Familiarity Bias)

Familiarity bias is an inclination or prejudice that alters an individuals' perception of risk. Familiarity is a mental short-cut that treats the familiar things as better than less familiar things. People are comfortable with things that are familiar to them. The human brain often uses the familiarity short cuts in choosing investments. That is why people tend to invest more in the stock of their neighbour companies, employer companies, as well as domestic companies.

People are fearful of ambiguous situations where they feel that they have little information about the possible outcomes. In experiments, people are more inclined to bet when they know the probabilities of various outcomes that when they are ignorant of the same. In the world of

(iii) OTHER BIASES:

Innumeracy:

Innumeracy refers to people confuse between nominal change and real change. People find difficulty in figuring out probabilities. They also give attention to big numbers and give less weight to small figures. Moreover people tend to ignore the base rate and consider only case rate, which reflect the most recent experience. They tend to estimate the likelihood of event on the basis of past example and how frequently that event has occurred.

Innumeracy can be explained in following actions:

- People are unable to differentiate between nominal change and real change.
- People have difficulty in figuring out true probabilities.
- People are more attentive to big numbers.
- People miss frequency of happening past stories.

- People generally ignore base rate.

Affect:

The affect heuristic concerns _goodness‘ and _badness‘. Affective responses to a stimulus occur rapidly and automatically: note how quickly you sense the feelings associated with the stimulus words treasure or hate.

Illusion:

A Natural way for people to think about money is in terms of nominal rather than inflation-adjusted values. Thus under hyperinflation people will view nominal wage increase more favourably than it really is.

Behavioural Portfolios:

While investors understand the principle of diversification, they don‘t form portfolios in the manner suggested by Harry Markowitz portfolio theory. According to Hersh Shefrin and Meir Statman, the psychological tendencies of investors prod them to build their portfolios as pyramid of assets as under:

- Investors have several goals such as safety, income, and growth, often in that sequence.
- Each layer in the pyramid represents assets meant to meet a particular goal.
- Investors have separate mental accounts for each investments goal and they are willing to assume different levels of risk for each goal.
- The asset allocation of an investor‘s portfolio is determined by the amount of money assigned to each assets class by the mental accounts

Limitations/Criticisms of Behavioural Finance:

Although behavioural finance had been gaining support in recent years, it is not without its critics. Some supporter of EMH and standard finance theory criticise the behavioural finance approach.

Critics of behavioural finance contend that behavioural finance is more a collection of anomalies than true branch of finance and these anomalies will eventually be priced out of the market or explained by appeal to market microstructure arguments. However, a distinction should be noted between individual biases and social biases; the former can be averaged out by the market, while the other can create feedback loops that the market further from the equilibrium of the _fair price‘.

Another argument is found in explanations of the equity premium puzzle. It is argued that the puzzle simply arises due to entry barriers, that have traditionally impeded entry by individuals into the stock market, and that returns between stock and bonds should stabilize as electronic resources open up the stock market to a greater number of traders.

Others contend that most personal investment funds are managed through superannuation funds, so the effect of these putative barriers to entry would be minimal. In addition, professional investors and fund managers seem to hold more bonds than one would expect given return differentials.

Even though there are some anomalies that cannot be explained by modern financial theory, market efficiency should not be totally abandoned in favour of behavioural finance. Many of the findings in behavioural finance itself appear to be collection of anomalies that can be explained by market. It is observed that, the problem with the general area of behavioural finance is that it only serves as a complement to general economics at the moment; mostly because it is quite a new area

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MOULE III

Heuristics and Biases Heuristics

Heuristics is a strategy which can be applied to a variety of problems that usually but not always yields a correct solution. People often use heuristics that 20 reduce complex problem solving to more simple judgmental operations (Tversky and Kahneman 1981). Heuristic decision process is the process by which the investors find things out for themselves usually by trial and error lead to the development of rules of thumb. In other words it refers to rules of thumb which humans use to make decisions in complex uncertain environment (Brabazon 2000). Heuristics is relevant in modern trading when the number of instrument and the density of information have increased significantly. Using heuristics allows for speeding up the decision making. Traditional financial models assume the exclusion of heuristics and assume all decisions being based on rational statistical tools. (Shefrin -2000)

Behaviour Biases

Modern theory of investors decision making suggests that investors do not always act rationally while making an investment decision they deal with several cognitive and psychology errors. These errors are called behavioural biases. Behavioural bias is defined as a pattern of variation in judgment that occurs in particular situations which may sometimes lead to perpetual alteration, inaccurate judgment, illogical interpretation or what is largely called irrationality (Gordon 2011). Investors may be inclined towards various types of behavioural biases which lead them to make cognitive errors. People may make predictable non-optimal choice when faced with difficult and uncertain decisions because of heuristic simplifications. Behavioural biases abstractly are defined in the way as systematic errors in judgments. (Chen et al 2006) Researchers 'distinguish a long list of biases applying over fifty of these to individual investor behaviour. Recent studies categorize the biases according to some kind of meaningful framework. Some authors refer to biases heuristics (rules of thumb) while others call them beliefs, judgments or preferences; still other scholars classify biases along cognitive or emotional lines. Instead of a universal theory of investment behaviour,

behavioural finance research relies on broad collection of evidence pointing to the ineffectiveness of human decision making in various economic decision making circumstance.

Overconfidence Bias

Overconfidence bias has been considered as the most basic form by Pompian (2006), Overconfidence according to him can be measurable as unwarranted faith in ones intuitive reasoning, judgment and cognitive abilities. Overconfidence derives from a large body of cognitive psychological experiments both their own predictive abilities and the precision of the information they have been given. Shefrin (2000) comprehends that overconfidence pertains to how well people understand their own abilities and the limits of their knowledge. A common trait among investors is a general overconfidence of their own ability when it comes to picking stock and to decide when to enter or exit a position. Odean (1998) researched these tendencies and found that traders that conducted the most trades tended on average to received significantly lower yields than the market. Barber and Odean (2000) partitioned investors based on gender and based on the previous psychological research found that men are more overconfident than women and overconfident investors trade excessively.

Overconfidence stems partly from illusion of knowledge. The human mind is perhaps designed to extract as much information as possible from what is available. They may not be aware that the available information is not adequate to develop an accurate forecast in uncertain situations. Investment with overconfidence, can lead to inappropriate or risky investments. Overconfidence causes investors to overestimate their knowledge, underestimate risks, and exaggerate their ability to control events.

Fear and Greed In Financial Markets

Greed and fear refer to two opposing emotional states theorized as factors causing the unpredictability and volatility of the stock market, and irrational market behaviour inconsistent with the efficient-market hypothesis. Greed and fear relate to an old Wall Street saying: "financial markets are driven by two powerful emotions – greed and fear."

Greed and fear are among the animal spirits that Keynes identified as profoundly affecting economies and markets. Warren Buffett found an investing rule in acting contrary to such prevailing moods, advising that the timing of buying or selling stocks should be "fearful when others are greedy and greedy only when others are fearful." He uses the overall Market capitalization-to-GDP ratio to indicate relative value of the stock market in general, hence this ratio has become known as the "Buffett Indicator"

Greed

Greed is usually described as an irresistible craving to possess more of something (money, material goods) than one actually needs.

According to several academics greed, like love, has the power to send a chemical rush through our brains that forces us to put aside our common sense and self-control and thus provoke changes in our brains and body. However, there is no generally accepted research on physiology of greed.

Other academics tend to compare greed to an addiction, because greed like smoking and drinking can illustrate that if a person can take over one's addictions it is possible to avert bad effects from resisting it. On the other hand, if one can not resist its temptations, he can easily get swept away by it. In other words, it can be deduced that certain traders who join the business world for the emotional agitation and desire of hitting that emotional high, are addicted to the release of certain brain chemicals that determine those states of happiness, euphoria and relaxation. Before mentioned fact can also imply that such traders are susceptible to all addictions. Furthermore, humans' brains are naturally activated by financial awards, which in the same way as drugs produce an incredible but perilous feeling and thus an addictive experience.

Fear

Emotion of fear is usually characterised as an inconvenient, stressful state, triggered by impending peril and awareness of hazard. Internet bubble is not only a good example of investors' greed but also the period following the bubble can serve as a good characteristic for fear induced market.

In pursuance of solutions to suppress their losses after Internet bubble crash, fearful investors decided to swiftly move out of the stock markets concentrating their attention on less uncertain purchases, spurring their capital into market securities, stable value funds and principal protected funds, all of low risk and return securities. Such behaviour is an example of a complete negligence of long term investing plan which is based on fundamentals. Investors disregarded their plans because of fear of committing persisting losses, which identically did not bring any profits and benefits.

Emotions And Financial Markets

Investor behaviour has been the focus of many studies and numerous theories attempt to explain the regret or overreaction that buyers and sellers often experience when it comes to money. The reality is that the investor's psyche can overpower rational thinking during times of stress, whether that stress is a result of euphoria or panic. Taking a rational and realistic approach to investing—during what seems like a short time frame for capitalizing on euphoria or fearful market developments—is essential.

Key points

- ✓ Investing based on emotion (greed or fear) is the main reason why so many people are buying at market tops and selling at market bottoms.
- ✓ Underestimating risks associated with investments is one reason why investors sometimes make suboptimal decisions based on emotion.
- ✓ During periods of market volatility and rising interest rates, investors often move funds from riskier stocks and to lower-risk interest rate securities.
- ✓ Dollar-cost averaging and diversification are two approaches that investors can implement to make consistent decisions that are not driven by emotion.
- ✓ Staying the course through short-term volatility is often the key to longer-term success as an investor.

The non-professional investor is typically putting hard-earned cash in investments for the sake of receiving a return. Still, they see their investments lose value due to market developments at

times. The losses can cause stress and second-guessing. That is, many investors have a relatively low risk tolerance when it comes to investing because losing money is painful.

But risk can be viewed as a guidepost for investing and investor behavior. Investors who enter into investments with a base level understanding of the risks involved can mitigate a great deal of the emotion associated with investing. In other words, challenges due to emotional investing can crop up when investors see unidentified or higher stake risks than they had originally ascertained.

Bull vs. Bear Markets

Bull markets are periods when markets move up relentless and, sometimes, indiscriminately. When the bull rages and investor sentiment becomes one of general exuberance, investors might see market opportunities or learn about investments from others—such as news stories, friends, co-workers, or family—that may compel them to test new waters. The excitement might lead the investor to try to obtain gains from investments that are emerging due to bullish market conditions.

Likewise, when investors read stories about a bad economy or hear reports about a volatile or negative market period, fear for their investments can fuel selling. Bear markets are always lurking around the corner and come with many of their own caveats that can be important for investors to follow and understand. In contrast to a bull market, sometimes financial markets can trend lower for many months or even years.

Oftentimes bear markets evolve from an environment of rising interest rates that can spur risk-off trading and a transition from riskier investments like stocks to low-risk savings products. Bear markets can be difficult to navigate when investors see their equity holdings lose value while safe havens become more enticing due to their rising returns. During these times, it can be hard to choose between buying equities at market lows or buying into cash and interest-bearing products.

Bad Timing

Emotional investing is often an exercise in bad market timing. Following the media can be a good way to detect when bull or bear markets are evolving because the daily stock market

reports feed off the activity occurring through the day, which can at times create a buzz for investors. However, media reports can also be out dated, short-lived, or even non- sensual and based on rumours.

At the end of the day, individual investors are accountable for their own trade decisions and therefore must be cautious when seeking to time market opportunities based on the latest headlines. Using rational and realistic thinking to understand when an investment may be in a development cycle is the key to evaluating interesting opportunities and resisting bad investing ideas. Reacting to the latest breaking news is probably a sign that decisions are being driven by emotion rather than rational thinking.

Time-Tested Theory

The notion that many market participants buy at the top and sell at the bottom has been proven by historical money flow analysis. Money flow analysis looks at the net flow of funds for mutual funds and often shows that, when markets are hitting peaks or valleys, buying or selling are at their highest.

Market anomalies like a crisis can be useful time periods for observation. During the financial crisis of 2007-2008, investors withdrew money from the market and money flows to mutual funds turned negative. The net fund outflows peaked at the market bottom and, as is typical for market bottoms, the selling created overly discounted investments, which eventually formed the basis for a turning point and the market's next ascent upward.

Strategies to Take the Emotion Out of Investing

Two of the most popular approaches to investing—dollar-cost averaging and diversification—can take some of the guesswork out of investment decisions and reduce the risk of poor timing due to emotional investing. One of the most effective is the dollar-cost averaging of investment dollars.

Dollar-cost averaging is a strategy where equal amounts of dollars are invested at a regular, predetermined interval. This strategy can be implemented in any market condition. In a downward trending market, investors are purchasing shares at lower and lower prices. During an upward trend, the shares previously held in the portfolio are producing capital gains and, since

the dollar investment is a fixed amount, fewer shares are purchased when the share price is higher.

The key to the dollar-cost averaging strategy is to stay the course. Set the strategy and don't tamper with it unless a major change warrants revisiting and rebalancing the established course. This type of strategy can work best in 401(k) plans with matching benefits, as a fixed dollar amount is deducted from each pay check and the employer provides additional contributions.

Behavioural Corporate Finance

Behavioural finance (of which behavioural corporate finance is a sub discipline) integrates psychology and economics into the study of human judgment and biases in decision making under conditions of uncertainty. Because of this work, based largely on the pioneering ideas of psychologists Daniel Kahneman and the late Amos Tversky, we no longer automatically assume that markets are efficient or investors rational. In 2002, Professor Kahneman was awarded the Nobel Memorial Prize in economics. (See "Daniel Kahneman: The Thought Leader Interview," by Michael Schrage, s+b, Winter 2003.)

The application of behavioural finance theory to corporate finance is now attracting the attention of a group of academics, many associated with Jeremy Stein, a professor of economics at Harvard University. Behavioural corporate finance argues that in many senses, corporations are natural arbitrageurs. Research by Malcolm Baker of the Harvard Business School and Jeff Wurgler of New York University suggests it is much easier for a chief financial officer to issue more shares when a company is overvalued than it is for a hedge fund to short overvalued shares; if the shares are not truly overvalued, the consequences to the CFO's own job are relatively modest compared to those for the hedge fund manager. Indeed, Professor Baker and Professor Wurgler have found evidence that the issuing of equity does coincide with high market valuation. This is not to say CFOs should become market timers and risk developing an inappropriate capital structure for their companies. But the "job security" advantages they have over fund managers imply they should have discretion when faced with irrational market "exuberance" or pessimism.

In this and other ways, behavioural corporate finance has begun to look at the investing and financing decisions of executives within firms. If executives are overconfident or overoptimistic, how are their decisions about capital structure affected? Are there ways to push them toward optimal behaviour?

In a bravura piece of empirical research titled "Managing with Style: The Effect of Managers on Firm Policies," Antoinette Schoar, an assistant professor of finance at MIT's Sloan School of Management, and Marianne Bertrand, a professor of economics at the University of Chicago Graduate School of Business, demonstrate that there is a pronounced "CEO effect" on decisions regarding capital structure. CEO decisions, they found, reflect a chief executive's personal style rather than a set of criteria determined by the firm. Financially aggressive CEOs use more leverage and hold less cash on the balance sheet, and many tend to grow their firms through acquisitions. More conservative leaders have more cash on the balance sheet and grow more through internal investments.

These different styles of capital management have real effects on corporate performance. Indeed, the Schoar–Bertrand study showed that conservative CEOs produced a lower rate of return on assets. Aggressive CEOs had higher returns, with the notable exception of those CEOs who made a lot of acquisitions; though considered aggressive, this group had lower returns on assets. The research also found that CEO styles are generational: Older CEOs tend to be more conservative, holding less debt and more cash on their balance sheets.

The real-world implications of this type of research go against much of the prevailing wisdom regarding corporate governance and CEO compensation. At least until the recent spate of corporate scandals, conventional wisdom held that a CEO's interests should be made to match the firm's and its shareholders' interests; thus, stock options that encourage the CEO to seek increases in the share price are an appropriate incentive. But if a CEO is operating according to a persistent bias or particular leadership style, this form of incentive compensation no longer aligns his or her interests with the firm's. A CEO may do what he or she thinks best, but nonetheless makes unsound decisions.

Behavioural finance research indicates that traditional ideas of corporate governance may be too simplistic. The board has to look beyond finding the optimal incentive contract and instead find the CEO with the experience, personality, and management style suited to the company's actual challenges. But this means the board has to know what type of CEO it needs.

Theories from behavioural finance are at the forefront of explaining differences in corporate financial policies and capital structures. Most important, however, behavioural corporate finance has reintroduced humanity — in all its complexity and subtlety — into corporate finance, where indeed it belongs.

RATIONAL DECISION MAKING PROCESS

Rational decision making is a multi-step process for making choices between alternatives. The process of rational decision making favours logic, objectivity, and analysis over subjectivity and insight. The word ―rational‖ in this context does not mean sane or clear-headed as it does in the colloquial sense. The approach follows a sequential and formal path of activities. This path includes:

- ✓ Formulating a goal(s)
- ✓ Identifying the criteria for making the decision Identifying alternatives
- ✓ Performing analysis Making a final decision

Assumptions of the Rationality in Decision-Making: The rational model of decision making assumes that people will make choices that maximize benefits and minimize any costs. The idea of rational choice is easy to see in financial theory. For example, most people want to get the most useful products at the lowest price; because of this, they will judge the benefits of a certain object (for example, how useful is it or how attractive is it) compared to those of similar objects. They will then compare prices (or costs). In general, people will choose the object that provides the greatest reward at the lowest cost.

The rationality also assumes:

- ✓ An individual has full and perfect information on which to base a choice.
- ✓ Measurable criteria exist for which data can be collected and analysed.
- ✓ An individual has the cognitive ability, time, and resources to evaluate each alternative against the others.
- ✓ The rational-decision-making model does not consider factors that cannot be quantified, such as ethical concerns or the value of altruism. It leaves out consideration of personal feelings, loyalties, or sense of obligation. Its objectivity creates a bias toward the preference for facts, data and analysis over intuition or desires

ELLSBERG'S PARADOXES

Human beings crave certainty and loath ambiguity. People naturally gravitate towards the ―sure thing‖ versus another option where the outcome is uncertain. Sometimes this is true even when the uncertain path may have huge upside.

Investors are hard-wired to avoid ambiguity wherever possible, and this tendency to shy away from ambiguities in decision-making is called the Ellsberg Paradox. The example, which Daniel Ellsberg (of the Pentagon Papers fame), used to demonstrate the paradox involves an urn and red, black, and yellow balls

An individual is told that an urn contains 90 balls from which 30 are known to be red and the remaining 60 are either black or yellow. He is asked to choose between the following gambles: Gamble A: $100 if the ball is red

Gamble B: $100 if the ball is black And one between the following:

Gamble C: $100 if the ball is not black

Gamble D: $100 if the ball is not red

In most cases people will choose A over B and D over C. It is thought that betting for or against the known information (red ball) is safer than betting for or against the unknown (black ball). Nevertheless, these choices of preferences result in a violation of the sure-thing principle, which would require the ordering of A to B to be preserved in C to D.

We can derive a series of conclusions from this paradox. First, the appearances of a breach in the independence axiom, as common elements are considered in both gambles. Second, how individuals are reluctant to play in complex games, which shows their aversion to ambiguity. This statement also concerns the last conclusion which regards the disjunction effect. Decisions are postponed until having information, although this information may not have an influence is our final decision.

Applications Ellsberg's Paradoxes in Finance:

The Ellsberg paradox shows us that can depart from rational decision-making, as informed by probabilities, since we are averse to ambiguity and avoid probabilities when they are difficult to assess. The degree of incompleteness of the market reaction increases monotonically with the level of information uncertainty, suggesting that investors tend to underreact more to new information when there is more ambiguity with respect to its implications for firm value. How might this be reflected in the market?

We might favour preferred stock, with a dividend stream that has pay-outs of specific, fixed amounts, over an investment in common stock with more ambiguous pay-outs, including dividend increases and appreciation potential, which is hard to assess. Such a preference may be unduly affected by our aversion to ambiguity, rather than by a strictly rational assessment of each security, leading us to make the wrong decision.

The paradox demonstrates that when faced with a ―sure thing,‖ we can sometimes overweight its value relative to other opportunities, since the possibility of downside outcomes is highly salient, and available to us. In other words, our concern about the possibility of a bad outcome is not consistent with its probability; we overweight the risks when certainty is an option

Consider a tender offer from a firm. You bought the stock at $5, and it has traded up to $10, and today, the company offers to repurchase your stock for today's $10. You have recently done valuation research suggesting that the intrinsic value of the firm is actually $15. Yet, because you have a ―bird in hand,‖ an offer to buy out your entire position at the $10 price, you conclude that you want to sell. Why? I would be too painful to see the stock trade back down below $10 and to have to sell at such a lower price, when you could have sold it at $10, which is a ―sure

thing.‖ In this case, you would be overemphasizing the downside risk, and discounting your own research, since you have a certain outcome available to you, which is distorting your judgment.

Decision makers, like physicians, patients, equity investors, and so on, prefer certainty, rather than complexity and ambiguity. This sometimes causes many decision makers to choose options that contravene the expected utility of the problem. That is, the certainty Effect contributes to risk aversion and will lead people make choices that inconsistent with expected utility theory.

4 Ways the Ellsberg Paradox Inhibits in Decision-Making:

1.Investors' stick with a known situation, even if it's bad for them: The Ellsberg Paradox suggests a reason: Human beings are so risk averse that we choose to stick with bad situations rather than face uncertainty. Uncertainty is scary. But is fear of the unknown going to keep you stuck in a situation you know is making you miserable?

2.Investors Can't Embrace Change: When change is outside of your control, the psychological barriers are even worse. Embracing change is one of the key strategies to live an agile lifestyle. Because the world around us is changing so quickly, only the agile among us will thrive. But being agile means getting comfortable with the vast amount of stuff that's outside your control. And that's hard.

3.Investors Aim Low and Settle for Mediocre Results: That's how many of us treat our lives. We stay in mindless corporate jobs for the ―security‖ and climb the ladders others set out for us, never thinking what heights we could reach if we were just a bit more comfortable with uncertainty.

4.People Talk Out of Everything: While you're struggling with all this ambiguity, the other people in your life definitely won't get it. From the outside looking in, they'll never understand why you want to give up your high-prestige Fortune 500 job for the chaotic uncertainty of being an entrepreneur or an artist. Because they don't know the toll it's taking on you mentally, physically, or emotionally, they compare the things they can measure (salary, benefits, etc.) and figure you're crazy for going with the unknown.

MARKET BUBBLES

Bubbles typically refer to a situation where assets or financial instruments see a rapid increase in price – an increase in price which is driven by speculative demand and are unsustainable in the long run. At a certain price, the bubble _bursts' and prices come down to a level which more closely reflects the fundamental economic value. A bubble strongly implies that psychological factors such as irrational exuberance and over-confidence play a role in increasing the value of the asset.

A bubble is a type of investing phenomenon that demonstrates the most basic type of "emotional investing. It is characterized by rapid escalation of asset prices followed by a contraction. It is formed by a surge in asset prices unwarranted by the fundamentals of the asset and driven by exuberant market behaviour. When no more investors are willing to buy at the elevated price, a massive selloff occurs, causing the bubble to deflate

A bubble may be defined loosely as a sharp rise in price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers – generally speculators interested in profits from trading in the asset rather than its use of earning capacity. The rise is usually followed by reverse expectations and a sharp decline in price often resulting in a financial crisis.

The most important phases of bubble formation (Five Steps of a Bubble) are as follows:

1)Initial Rise, Expectations of Further Rises: Kindleberger (2000) found the origins of this in an exogenous shock (displacement) Different Aspects of Bubbles affecting the economy, modifying economic outlook in a positive way. This can be different in different eras; either quantitative, like the discovery of a new continent, or qualitative, like a technical invention enhancing the effectiveness of production.

2)New Buyers: The demand for shares increases; more and more participants take part in trading, and the activity of the players grows.

3)Speculation: Investors do not buy with the aim of receiving dividend income, rather price gains. Although this definition has weak points mentioned earlier, it will be used as a starting

point in our studies, in the sense that the proportion of longterm investors aiming to receive dividend income decreases along with the average investment period.

4)Price Decline: The collapse of prices and the whole of the market may occur suddenly or gradually, with players leaving the market.

5)Financial Crisis: Although Kindleberger did not consider this to be a necessary consequence, the following discussion of historical examples will account for the positive and negative macroeconomic impacts as well, such impacts lending an economic weight to the phenomenon

CAUSES OF BUBBLES

Usually, bubbles start for some good economic reasons. For example in the early 2000s, low-interest rates and economic growth encouraged people to buy a house. In 1990s internet stocks did offer good potential growth for this new business. However, rising prices and rising demand can create a dynamic where positive news encourages people to take more risks and prices raise more than they should. Some factors that can cause bubbles:

Irrational Exuberance: In certain circumstances, investors can buy assets because of strong psychological pressures which encourage them to ignore the fundamental value of the asset and believe that prices will keep rising.

Herding Behaviour: People often assume the majority can‘t be wrong. If banks and well-established financial leaders are buying, they assume it must be a good investment. (the economics of herding and irrationality)

Short Termism: People make decisions based on short-term rather than the long-term.

Adaptive Expectations: People often judge the state of a market and economy by what has happened in the recent past.

Hope they can beat the market: People believe they can beat the market and get out before the bubble pops.

Cognitive Dissonance: A filtering out of the bad news and looking for views which reinforce their beliefs.

Financial Instability Hypothesis: The theory that periods of economic prosperity cause investors to be increasingly reckless leading to financial instability.

Monetary Policy: Sometimes bubbles occur as an indirect consequence of monetary policy. For example, the FED's decision to keep interest rates in the US low encouraged the credit bubble of the 2000s. Excess liquidity can more easily lead to bubbles because people need somewhere to put their money.

Global Imbalances: Some argue the US financial bubble of the 2000s was caused by an inflow of currency from abroad. The US ran a trade deficit and attracted hot money inflows, leading to higher demand for US securities. This kept interest rates lower and values of US higher than they otherwise would be

DIFFERENT TYPES OF BUBBLES

Market Bubble: When a particular market sees a rapid increase in price. For example, this could be a housing bubble.

Commodity Bubble: When the price of one commodity or several commodities increases in price. For example, we might see a speculative bubble in the price of gold, e.g. in the 1970s and 1980.

Stock Market Bubble: When the value of stocks and shares increase rapidly, e.g. prices increase faster than earnings. A stock market bubble is vulnerable to a crash, where market traders come to feel the bubble prices are over-inflated.

Credit Bubbles: A rapid growth in consumer and business credit to finance higher consumer spending.

Economic Boom/Bubble: Related to the concept of market bubbles is the idea of a general economic boom. A boom implies that the economy expands at an unsustainably fast rate, leading to inflation (e.g. aggregate demand grows faster than productive capacity). Ultimately an economic boom usually proves unsustainable. There may be a strong link between market bubbles and an economic boom. For example, a house price bubble may cause rising wealth and confidence leading to higher consumer spending and economic growth. In turn, the higher economic growth feeds the housing boom.

IDENTIFYING STOCK MARKET BUBBLES

A stock market boom can be described as a bubble if there is high probability of a large scale fall in share prices. Stock market crash is not triggered by fundamental news or by a certain level of share overvaluation. Instead, it happens because of a drastic change in the behavior of market players. This is why the necessary and sufficient conditions for the bursting of a given asset price bubble, applicable in practice, cannot be provided with the tools of mathematical economics. A market crash will ensue with a high likelihood if noise trading becomes dominant, the signals of which are to be found in the following stochastic factors:

- Increasing effect of leverage: As a direct consequence, more money is at the disposal of investors (see previous paragraph). If investors borrow to buy shares, have the opportunity to postpone payment, or making a purchase without full financial cover, it is impossible for them to realize long-term profit on that particular stock, i.e., they are unable to make dividend payment. This means a short sale constraint shortening the average investment period. The due date of debt repayment is private information incurring, on the one hand, deduction problem and noise trading. On the other, if there is an increasing pool of leveraged shareholders, repayment date and a short sale constraint will more likely be due at a given moment, amplifying the degree of the price fall.

- Increasing activity on part of the economic policy: Economic policy, and monetary policy in particular, can directly influence the conditions of credit, bond and money markets connected to stock markets, thus making the state a protagonist in the stock market. Intended monetary expansion or restriction is always a signal, as it attempts to stimulate or curb the rise of prices. For example, the frequent and tendentious revisions of the base rate convey a series of signals towards market players. In theory, the opportunity cost of shares (the rise in bond yields) prompts investors to lower the share of stocks in their portfolios. Sometimes, however, investors are late and inaccurate in integrating signals of the economic policy into their expectations, increasing the volume of noise in the market.

- Increasing number of corporate scandals, fraud and corruption: Share price rise augments the power and influence of executives, while directly affecting their wealth through managerial stock options. Information asymmetry enables them to use methods verging on fraud to maintain

the trust of owners-shareholders if corporate performance is not contributing positively to the share price. The disclosure of such cases may undermine trust, causing a change in investor behavior and prompting the sales of the shares of other companies.

- Fundamentally unjustifiable co-movement of share prices: The co-movement of different shares or investments may signal a dominance of noise trading. When investors do not evaluate a given asset based on its expected future yield, i.e., do not evaluate an enterprise based on the probability of its future success, and instead they make simplifications and use rules of thumb, a fundamentally unjustifiable share price co-movement may ensue. If this co-movement increases, price fluctuation may signal a dominance of noise trading, forecasting a stock market collapse.

The last characteristic of stock market bubbles is that the boom and subsequent crash must have an impact on the economy. Only then will the natural instability of stock markets become a factor affecting economy, without which the concept of a bubble would be weightless. By negative impact we mean a slowdown in economic growth or a decline in consumption and/or investment. However, a bubble may carry positive impacts as well which display themselves either during the boom or following the crash, in the long run.

One such effect is the facilitation of capital issue for a given industry allowing a better financing of riskier solutions and developments. After a crash, the framework surrounding the stock market may also change, bringing about legal, regulatory and institutional evolution as a consequence of the collapse. If a stock market boom has no impact on the economy of a country or on related regulation and institutional structure, we contest such a phenomenon can be called a bubble.

Initial displacement, distinct price rise, new buyers (increasing trade volume) all are direct traits of a bubble, while leverage, the large number of economic policy signals, corporate scandals, fraud and corruption are indirect indicators of the phenomenon

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