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EDITOR: DR. PRASANNA CHANDRA

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ARTICLES /CASES

1. BEHAVIOURAL FINANCE : AN OVERVIEW

Dr Prasanna Chandra

Financial economics seems to be in the midst of a paradigmatic shift, from a neoclassical-based paradigm to a behaviourally based paradigm.

As Werner Erhard and Michael Jensen noted in 2015 "The progress in economics and finance over the last two-plus decades—founded on the paradigm-altering insights from psychology about human behaviour by scholars such as Kahneman, Tversky, Thaler, Sunstein, and others—has been huge. This paradigmatic revolution has allowed the

profession to focus on the existence and significant impact of widespread counter-to-self-interest behaviour that was hitherto unnoticed, ignored, or dismissed."

Traditionally, financial economics adopted the neoclassical framework of economics. In this framework, financial decision makers exercise consistent and rational preferences (as defined by John von Neumann and Oskar Morgenstern) over uncertain wealth distributions and follow the rules of classical statistics (Bayesian techniques) to form appropriate statistical judgments based on the data at their disposal.

Psychologists studying decision making behaviour have produced ample evidence to demonstrate that people do not behave as if they exercise consistent and rational preferences and people do not form judgments following the rules of classical statistics. Rather they systematically behave in a manner different from both. Behavioural psychologists have proposed theories that throw light on the causes and effects associated with these systematic departures.

Behavioural finance enriches the standard finance tool box by drawing on insights from psychology, neuroscience, sociology, organisational behaviour, and law. As a result, financial analysis is based on more realistic assumptions about individuals.

✦ STANDARD FINANCE AND BEHAVIOURAL FINANCE

In standard finance (also called neoclassical finance or traditional finance), hypotheses are generated from the logically coherent structure of neoclassical economics. In behavioural finance facts drive the creation or renewal of a theory. As Werner De Bondt commented on behavioural approach: "Research methods are mainly inductive not deductive. We collect facts based on experiments, or questionnaires, or observation—and we organize them into a smaller number of superfacts. One might say we draw maps."

Standard finance dates back to the late 1950s and early 1960s. In 1961, Merton Miller and Franco Modigliani characterised investors as rational. Eugene Fama described the market as efficient in 1965. Harry Markowitz prescribed the rules of mean-variance portfolio theory in its basic from in 1952 and in its expanded version in 1959. William Sharpe developed the capital asset pricing model in 1964, which postulates that the expected returns are a function of risk (measured by beta) and risk alone. Fisher Black and Myron Scholes developed the option pricing model in 1976.

While the standard finance revolutionised the study of finance and injected rigour into the field, many lacunae were found. For example, standard finance cannot explain why:

- The volume of trading on the exchanges is so high.
- Individual investors hold undiversified portfolios.
- Returns vary across stocks for reasons other than risk.
- Managers display so much irrationality in mergers and acquisitions.

- The equity risk premium has been so high.
- The stock market displays so much of volatility.
- Booms and crashes occur periodically.
- Capital structure decisions are made in such an ad hoc manner.

The goal of behavioural finance is to explain financial phenomena by looking at non-rational behaviour (more accurately, behaviour that does not conform to the tenets or rationality specified in neoclassical finance) on the part of economic agents.

- **Foundation Blocks of Standard Finance**

The foundation blocks of standard finance (also called rational finance or neoclassical finance) are as follows:

1. People are *rational* in the sense that when they receive information they update their beliefs correctly. Further given their beliefs, they make choices that are normatively acceptable.
2. People are guided only by *utilitarian* wants.
3. *Expected utility theory* describes how people make decisions under risk.
4. People design their portfolios according to the *mean-variance portfolio theory* which looks at expected returns and risk.
5. People save and spend as per the dictates of the *standard life-cycle theory*. This means that they naturally follow the right way to save and spend.
6. Expected returns of investments are explained by the standard asset pricing theory (*capital asset pricing model* and its extensions).
7. Markets are *efficient* in the sense that prices reflect intrinsic values and it is not possible to beat the market.

- **Foundation Blocks of Beheavioural Finance**

For each of the foundation blocks of standard finance, behavioural finance offers an alternative. According to behavioural finance:

1. People are not *fully rational*. In forming their beliefs and making their choices, they are susceptible to cognitive and emotional shortcuts and errors.
2. In addition to *utilitarian wants*, people are guided by *expressive and emotional wants*.
3. *Prospect theory* describes better how people make decisions under risk.
4. People design their portfolios according to *behavioural portfolio theory*, whereby people's wants extend beyond high expected return and low risk, to include factors like social status and social responsibility.
5. People save and spend according to *behavioural life cycle theory* which considers impediments such as weak self-control.

6. Expected returns from investments are explained by *behavioural asset pricing model*. In this model, expected returns are determined by risk and some behavioural factors.
7. *Markets are characterised by inefficiencies*, even if it is difficult to beat them.

✦ EVOLUTION OF BEHAVIOURAL FINANCE

Standard finance blossomed during the decades of 1950s, 1960s, and 1970s, a period of relative calm in financial markets. Standard finance was preceded by what Meir Statman calls *proto- behavioural finance* and followed by behavioural finance, beginning in the early 1980s. Proto- behavioural finance was a preliminary version of behavioural finance which described normal behaviour in terms of cognitive and emotional shortcuts and errors and acknowledged normal wants for utilitarian, expressive, and emotional benefits. It was essentially unstructured and relied on anecdotes to reach general conclusions. It is reflected in the writings of perceptive observers such as Adam Smith, Benjamin Graham, and John Maynard Keynes.

The first-generation behavioural finance starting in the early 1980s, largely accepted the notion that people have "rational wants" (meaning that they are concerned only with the utilitarian benefits of high returns and low risk), but succumb to cognitive and emotional errors that mislead them.

The second-generation behavioural finance regards people as normal and as having the full range of normal wants: utilitarian, expressive, and emotional. More than the cognitive and emotional shortcuts and errors, the normal wants of people illuminated important questions of finance such as saving and spending, portfolio design, asset pricing, and market efficiency.

Behavioural finance is "work in progress." A lot of effort is being made to make it "muscular and fit" finance. It seeks to describe the wants, shortcuts, and errors that characterise the behaviour of normal people and affect financial markets. It provides lessons for people who want to transform themselves from ignorant to knowledgeable and improve the ratio of smart to foolish decisions.

✦ TEN KEY IDEAS OF BEHAVIOURAL FINANCE

The ten key ideas of behavioural finance are:

1. Two systems of thinking
2. Cognitive shortcuts and errors
3. Emotional shortcuts and errors
4. Varied wants
5. Prospect theory
6. Mental accounting
7. Other - regarding preferences and social influences

8. Bounded rationality in financial markets
9. The triune model of human brain
10. Mismatch between our brains and our environment

Two Systems of Thinking For the past several decades, psychologists have studied intensively how the human mind works. They believe that there are two systems in the mind. Psychologists Keith Stanovich and Richard West refer to them as System 1 and System 2. System 1 operates automatically and rapidly. It requires little or no effort and is not amenable to voluntary control. System 2 is effortful, deliberate, and slow. It requires mental activities that may be demanding, including complex calculation. As Daniel Kahneman put it, "The operations of System 2 are often associated with the subjective experience of agency, choice, and concentration."

When we think of ourselves, we identify ourselves with System 2, and think that we form beliefs and make choices in a conscious, deliberate manner. But in reality, System 1, where impressions and feelings originate effortlessly, provides the main inputs for the explicit and deliberate choices of System 2. We can think of the two systems as agents with their individual abilities, limitations, and functions

Cognitive Shortcuts and Errors Cognitive shortcuts are part of the intuitive System 1 in our minds. They lead to good choices most of the time, but they also turn into errors and mislead us into poor choices. When System 1 misleads, System 2, the reflective system in our minds, leads to better choices.

The cognitive shortcuts and associated errors most relevant in the context of finance are:

- Representativeness bias
- Availability bias
- Anchoring bias
- Hindsight bias
- Confirmation bias
- Overconfidence

Emotional Shortcuts and Errors Emotions, mood, and affect have a role in cognition.

Emotional shortcuts, like cognitive shortcuts, are part of the reflexive System 1 in our mind. They lead to good choices most of the time. But they can turn into errors and mislead. For example, fear acts as an emotional shortcut that can mislead when it is absent or when it is exaggerated.

The emotional shortcuts that are most relevant in the context of finance are:

- Hope and fear
- Greed
- Anger

- Regret and pride
- Self-control
- Mood
- Affect

It must be emphasised that cognition and emotions interact. So, it becomes difficult to attribute shortcuts, errors, and choices to one or the other.

Varied Wants From all products and services (including financial products and services) we want three kinds of benefits: utilitarian, expressive, and emotional. As far as investments are concerned, the three kinds of benefits may be defined as follows:

Utilitarian Benefits:	What does the investment do to my pocketbook? Utilitarian benefits of investments are reflected mostly in wealth, augmented by high investment returns.
Expressive Benefits:	What does the investment say about me to others and to me? For example, a stock picker may say, "I am smart. I can identify winners." Or an option trader may say," I can assume risk and know how to control it."
Emotional Benefits:	How does it make me feel? An insurance policy may give one a sense of security, a speculative stock may provide hope, and stock trading may offer excitement.

Prospect Theory Expected utility theory, developed by the mathematician John von Neumann and the economist Oscar Morgenstern, is a normative theory that shows the rational way to think about a problem. Like a typical economic theory, it serves both normative and descriptive purposes. According to expected utility theory: (a) Utility depends on the level of wealth. (b) Individuals are always risk-averse. (c) Probability-weighting is linear.

Prospect theory, developed by Daniel Kahneman and Amos Tversky, sought to depart from the notion that a theory can be both normative and descriptive. It is a descriptive theory. The key features of prospect theory are: (a) Utility (referred to as value in prospect theory) depends not on the level of wealth but on *changes* in wealth. (b) The value function is steeper for losses than for gains. This means that people feel more strongly about the pain from a loss than the pleasure from an equal gain—about two and half-times as strongly, according to Kahneman and Tversky. This phenomenon is referred to as *loss aversion*. (c) People have different attitudes to risk in the domain of gains and losses. (d) Probability-weighting is non-linear.

Mental Accounting Mental accounting refers to the entire process of coding, categorising, and evaluating events and things.

Traditional finance holds that wealth in general and money in particular must be regarded as "fungible" and every financial decision should be based on a rational

calculation of its effects on overall wealth position. In reality, however, people do not have the computational skills and will power to evaluate decisions in terms of their impact on overall wealth. It is intellectually difficult and emotionally burdensome to figure out how every short-term decision (like buying a new phone or throwing a party) will bear on what will happen to the wealth position in the long run.

So, as a practical expedient, people separate their money into various mental accounts and treat a rupee in one account differently from a rupee in another because each account has a different significance to them. The concept of mental accounting was proposed by Richard Thaler, one of the brightest stars of behavioural finance.

Frame dependence is a form of mental accounting. Standard finance postulates that practitioners view all decisions through the transparent objective lens of risk and return. Indeed, frame independence lies at the core of the Modigliani-Miller approach to corporate finance. The essence of frame independence was put vividly by Miller as follows: "If you transfer a dollar from your right pocket to your left pocket, you are no wealthier. Franco and I put that rigorously.' Frame-independent investors pay attention to changes in their total wealth because that eventually determines how much they can spend on goods and services.

In contrast, behavioural finance argues that, apart from objective considerations, practitioners' perceptions or risk and return are influenced by how decision problems are framed.

Other Regarding Preferences and Social Influences Standard finance assumes that (a) people are guided by self-interest, (b) people lack consideration for character virtues, and (c) people are immune to social influences. These assumptions are at variance with reality. According to Sanjit Dhami: "Evidence indicates that humans exhibit *altruism* and *envy;* have an inherent tendency to cooperate yet display *conditional reciprocity* (respond to kindness with kindness and unkindness with unkindness); judge the kindness or otherwise of the *intentions* of others; and value human virtues such as 'promises' for their own sake." Furthermore, as social creatures, human beings are subject to the following social influences:

- Social proof or imitation
- Obedience to authority
- Contagion
- Herding
- Cascades

Bounded Rationality in Financial Markets The efficient markets hypothesis, a cornerstone of standard finance, says that the price of a security is the least unbiased estimate of its fundamental value (the present discounted value of the future cash flows associated with the security).

Due to various judgmental heuristics, investors may exhibit *investor sentiment* than can cause a discrepancy between prices and fundamental values. One can expect the irrationality of investors acting under the influence of 'sentiments' to be countered by the rationality of 'arbitrageurs' as the latter are supposed to be guided by fundamentals and immune to sentiments. However, arbitrage in the real world is limited by two types of risk. The first risk is fundamental. Buying 'undervalued' securities tends to be risky because the market may fall further and inflict losses. The fear of such a loss may restrain arbitrageurs from taking large enough long positions that will push price to fully conform to fundamentals.

The second risk is resale price risk and it arises mainly from the fact that arbitrageurs have finite horizons.

Due to investor sentiment and limits to arbitrage, financial markets display irrationality that can vary over time.

Maclean refers to these three areas as the *reptilian, mammalian*, and *hominid* brains respectively. This terminology suggests that the human brain has been shaped by an evolutionary process in which basic survival functions, emotional and social behaviour, and cognitive abilities emerged sequentially.

The triune model provides a deeper foundation for understanding some of the behavioural biases characterising financial decision making.

Mismatch between Our Brains and Our Environment About 99.9 per cent of human life was spent in the hunter-gatherer phase. The selection processes of that phase have sculpted and shaped our genome and plasticity. James Montier put it this way, "But remember, evolution occurs at a glacial pace; so our brains are well designed for the environment we faced 150000 years ago (the African savannah) but potentially poorly suited for the industrial age of 300 years ago, and perhaps even more ill-suited for the information age we currently live in." As Stephen Ilardia said, "We were never designed for the sedentary, indoor, socially isolated, fast- food laden, sleep-deprived, frenzied pace of modern life." The 10000-12000 years of agriculture and urbanization are the

Interesting Contrast

There is an interesting contrast between the coverage the field of finance receives in the nightly forecast and the academic discipline of financial economics. Whenever financial markets are covered in the news, the story is usually accompanied by pictures of people engaged in hectic activity of trading. The impression one gets from news is that financial markets are dominated by people. In contrast, the academic discipline of financial economics pays attention to present value, rate of return, risk, capital asset pricing model, Modigliani- Miller theories, and so on, but scarcely mentions people. It creates the impression that financial markets are almost devoid of people. But, in reality, people do matter. Why has financial economics largely focused on prices and ignored people? Perhaps we have better data on prices than people. For example, massive amounts of COMPUSTAT data are generated by CRSP. In contrast, we have very limited data available on the behaviour of individual economic agents.

2. STRATEGIC ASSET ALLOCATION, TACTICAL ASSET ALLOCATION, AND SECURITY SELECTION

Dr Prasanna Chandra

Strategic asset allocation consists of allocations to asset classes that meet the requirements of investors best, such as 50 percent to stocks, 40 percent to bonds, and 10 percent to cash. Strategic asset allocation may change over time as people's circumstances change.

Tactical asset allocation consists of temporary departures of asset allocations away from strategic allocations, such as decreasing to 40 percent the allocation to stocks and increasing to 50 percent the allocation to bonds. Tactical asset allocation is an attempt to increase portfolio returns beyond the return of strategic asset allocation by exploiting temporary deviations of asset class- values from their values.

Security selection involves selecting particular securities from all securities in an asset class. It seeks to increase portfolio returns beyond the returns of strategic asset allocation by selecting securities are likely to outperform others in their asset class.

Gary Brinson and his coauthors analysed the performance of 91 large US pension plans and found that variation in strategic asset allocation accounts for an average 93.6 percent variation in the total returns of portfolios, the balance being explained by variation in tactical asset allocation and security selection.

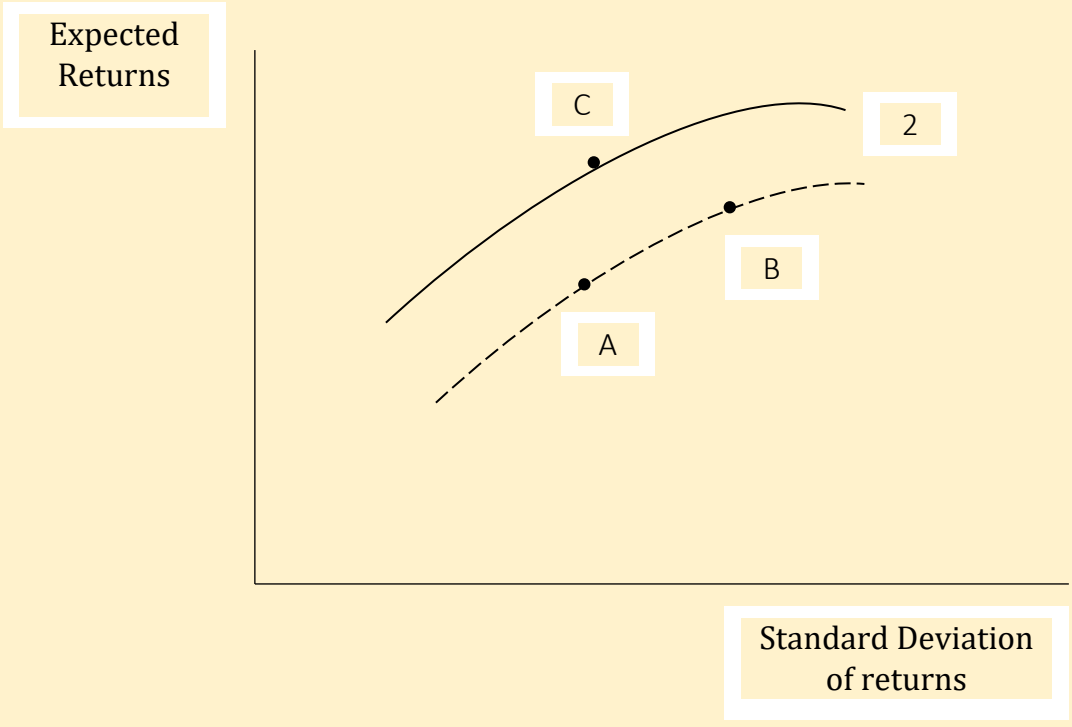
This finding is often interpreted as evidence that strategic asset allocation matters more than tactical asset allocation matters more than tactical asset allocation or security selection. This interpretation is incorrect because explaining the *variation* of returns is quite different from explaining the *magnitude* of returns and their signs, Brinson and his

coauthors found that the magnitude of returns in negative 1 percentage points. This means that tactical and security selection *detracted* 1.1 percentage points on average from portfolio returns that would have been produced with strategic allocation alone.

Strategic asset allocation is very important. Tactical asset allocation and security selection can also be potentially important but in different ways. As Meir Statman put it: "Tailoring good strategic allocation and security selection is like tailoring a well- fitting suit. Weaving good tactical asset allocation and security selection is like weaving the suit's fabric at high quality and low cost. But are important but in different ways.

Strategic allocation is part of *management of investors*. It focuses of on the wants, goals, financial resources, risk tolerance, and investment horizon of the investor. It provides guidance for avoiding cognitive and emotional errors on the path of accomplishing wants and associated goals. *Tactical asset allocation and security selection* are parts of *management of investments*. They are concerned with increasing returns without increasing risk. Strategic allocation involves movements on the efficiency frontier, such as from portfolio A to portfolio B on frontier 1.

While strategic asset allocation involves movements on the efficiency frontier, such as from portfolio A to portfolio B on frontier 1 in Exhibit, tactical asset allocation and security selection involve movements of the frontier, like the one from portfolio A on frontiner 1 to portfolio C on the higher frontier 2. Investors engage in tactical asset allocation and security selection seek to move the frontier higher, but all two often they end up moving it lower.



B. SNIPPETS

1. Bull Market and Bear Market

Howard Marks, a highly successful portfolio manager, describes the three stages of a bull market as follows:

"The first, when a few forward – looking people begin to believe things will get better. The second, when most investors realize improvement is actually taking place. The third, when everyone concludes things will get better forever."

On the flip side, Howard Marks describes the three stages of a bear market as follows:

"The first, when just a few thoughtful investors recognize that, despite the prevailing bullishness, things won't always be rosy. The second, when most investors recognize thinks are deteriorating. The third, when everyone's convinced things can only get worse."

2. Just- in- Time Budgeting for a Volatile Economy

Budgeting is a formidable challenge for most companies even under stable conditions. Managers often spend significant amounts of time on it, but derive very little value from it. Under volatile economic conditions, developing a reliable budget for an entire fiscal year is an enormously difficult task. The traditional budget process may even be unproductive.

While there is no easy solution, executives can take the following measures to improve the effectiveness of the budgetary process: scenario planning, zero-based budgeting, rolling forecasts, and quarterly budgeting.

Scenario Planning In a volatile environment, it makes sense to formally develop different business scenarios and model the implications of each scenario for the company. Although at the end of the process a single budget is adopted, it is supplemented with concrete business plans and projections for plausible future scenarios.

Zero-based Budgeting Most current budgets are anchored in the past, with marginal changes to reflect inflation and specific trends. In today's volatile environment where it is imperative to optimally manage discretionary expenditures, zero based budgeting which starts the process wholly from scratch is helpful. All expenditures, operating and capital must be carefully scrutinized and aligned with the company's strategy.

Rolling Forecasts Instead of preparing the annual budget once every year, it may be better to prepare a rolling 12 to 18 month budget. This enables the company to adapt itself to a fast-changing macroeconomic climate.

Quarterly Budgeting In times of extreme uncertainty, a company may abandon annual budgeting in favour of a more tactical quarterly budgeting. A company under stress should focus more on short-term cost reduction and working capital management and less on annual revenue or profit targets. As Mahmut Atken et.al. said, "The quarterly approach allows companies to allocate their resources in real time, to make better forecasts, and to review their performance at the end of each quarter and therefore identify and address problems more quickly."

3. Four Classes of Stock Market Players

Paul Samuelson identified four classes of stock market players.

- The "buy and hold" investors. They do reasonably well as long as the economy grows.
- The "hour –to-hour, day-to-day ticker watcher." They mostly make money only for their brokers.
- The "market timers" who try to exploit the changing sentiment of the investment public. They are sometimes successful at it.
- The diligent investors who study companies closely enough to take advantage of "special situations" of which the investing public is unaware. They make the most money, but they have to put in a lot of work or have privileged access to information.

To this list, one may add one more class, viz., the "quant jacks" who use economics and probability theory to gain an edge over the vast majority of market players.

4. PSU Divestment : Importance of Honouring Commitments

If the government wants to garner large sums from PSU divestment, it should honour its commitments. However, its track record in this respect is poor. Here are some promises that have not been kept: At the time of NTPC divestment in 2010, investors were assured that NTPC would be allowed to sell 10% of its output at merchant rate. During the ONGC divestment in 2012, the government had promised a transparent subsidy sharing formula. When NMDC was divested in 2010, it had assured investors that the company's iron ore would be priced commercially.

5. Finance Sector and Productivity

In their paper for the Bank of International Settlements, Stephen Cecchetti and Enisse Kharroubi argue that rapid growth in the finance sector tends to reduce productivity growth. Two factors seem be at work. First, the high compensation levels in finance attract the smartest graduates, leading to misallocation of human capital in the economy. Second bankers prefer to lend against tangible collateral, property in particular. That is why periods of rapid growth tend to be associated with property booms. Construction

and property, however, are not particularly productive. As a consequence, resources are diverted away from sectors of the economy which are more productivity enhancing.

PART C: WIT AND WIDSOM

1. **HUMOUR**
    - Critique of a tedious 1100 page novel "Writing it was either a labour of love or a love of labour."
    - Henry Kissinger offered the following advice for two groups at his dinner for the UN diplomatic corps: "To those of you who are diplomats, be mindful of what you say, for you are surrounded by the members of the Press. And to those of you who are members of the Press, be careful not to take anything seriously, for you are surrounded by diplomats."

2. **WISE SAWS**
    - About the only thing that comes to us without effort is old age. : Gloria Pitzer
    - If you start at the top you can move in only one direction downward.