EVOLUTION OF BEHAVIORAL FINANCE AND CORE CONCEPTS

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ABSTRACT

The efficient market hypothesis was considered as a path-breaking theory in modern finance. Models like Capital Asset Pricing Model (CAPM) gained tremendous popularity. As they looked through a series of remarkable experiments, Tversky and Kahneman (1974) began to uncover a previously un-researched series of behavioral biases – some kind of strange twists in human nature that cause us to act irrationally that is against our own interests. Over the years this assumption has been challenged by the psychologists and they argue that investors can't be rational as their decisions are influenced by cognitive and psychological errors. This paper studies the evolution of behavioral finance and deals with the core concepts in the subject.

Keywords: *Behavioral Finance, Behavioral Biases, Expenditure Decisions, Investment Decisions, Evolution*

Evolution of Behavioral Finance

The efficient market hypothesis was considered as a path-breaking theory in modern finance. Models like Capital Asset Pricing Model (CAPM) gained tremendous popularity. They were considered as scientific finance. The CML equation was given as:

$$R_P = I_{RF} + (R_M - I_{RF})\sigma_P/\sigma_M$$

where,

R_P = expected return of portfolio
R_M = return on the market portfolio
I_{RF} = risk-free rate of interest
σ_M = standard deviation of the market portfolio
σ_P = standard deviation of portfolio
$(R_M - I_{RF})/\sigma_M$ is the slope of CML.

$(R_M - I_{RF})$ is a measure of the risk premium, or the reward for holding risky portfolio instead of risk-free portfolio.
σ_M is the risk of the market portfolio. Therefore, the slope measures the reward per unit of market risk.
Schiller (2003) has written about the turnaround which the efficient market hypothesis had to face in the 1970's. The efficient markets theory reached its peak of dominance in academic circles around the 1970s. Those days, the rational expectations revolution in economic theory was in its initial stage of enthusiasm, a fresh new idea that occupied the center of all the attention. The concept or idea that speculative asset prices such as stock prices always factored in the best of the information about fundamental values and that the prices change only because of sensible and good information modeled quite well with theoretical trends of the time. Popular finance models of the 1970s associated speculative asset prices to economic fundamentals, using rational expectations to correlate finance and the entire economy in a single elegant theory. For instance, in 1973, Merton published "An Intertemporal Capital Asset Pricing Model (CAPM)", that explained how to generalize the capital asset pricing model to a more comprehensive inter-temporal general equilibrium model. In 1978, Lucas published "Asset Prices in an Exchange Economy", that stated that in a state of rational expectations general equilibrium, prices of rational assets may have a predictability element that is related to the predictability of consumption. In 1979, Breeden published his theory of "consumption betas", where a stock's beta (which measured the sensitivity of its return compared to some index) was determined by the association.
Wishful thinking can be dominating in relation to the work of a profession for a decade, but certainly not indefinitely. The 1970s already saw the beginning of some dissent over these models and a tendency to push them somewhat aside in favor of a more extensive way of thinking about economy and the financial

markets. A run through today again through finance journals from the 1970s, one can see a beginning of reports of anomalies that didn't seem likely to complement the efficient markets theory, even if they were not really presented as significant evidence against the theory. For instance, Fama's 1970 article, "Efficient Capital Markets: A Review of Empirical Work," was highly enthusiastic in its conclusions for market efficiency. But it did report some anomalies like some serial dependencies in stock market returns, although with a tone of pointing out how small the anomalies were.

The efficient markets hypothesis arrived at its stature of strength in scholarly circles around the 1970s. Around then, the judicious desires upset in monetary hypothesis was in its first become flushed of excitement, a new thought that involved the focal point of consideration. The possibility that speculative resource costs, for example, stock costs constantly fuse the best data about central qualities and that costs change simply because of good, reasonable data coincided very well with hypothetical patterns of the time. Conspicuous finance models of the 1970s related theoretical resource costs to monetary basics, utilizing judicious desires to integrate finance and the whole economy in one rich hypothesis.

As they looked through a series of remarkable experiments, Tversky and Kahneman (1974) began to uncover a previously un-researched series of behavioral biases – some kind of strange twists in human nature that cause us to act irrationally that is against our own interests. In *JudgementUnder Uncertainty* (1974) they outlined a series of such behaviors. In doing so, they gave birth to behavioral finance. In essence what they showed was that **people don't necessarily act rationally**, as defined through correct calculation of the probabilities of events, especially abnormal ones. Now one may not think that it is surprising. After all, we don't spend our days carefully calculating risks and the rewards. Yet this was precisely the dominant approach of economics at that time – the "so-called" **Efficient Markets Hypothesis**, which argued that all the information about a stock at any given point of time is embedded in a single value, its price. Instead, Kahnemann and Tversky showed that there are quite regular patterns of irrationality that can be seen behind people's behavior:

- We assess the likelihood of events happening based on our own ability to retrieve from memory similar events.
- We judge people based on stereotypes.
- We tend to make decisions based on some arbitrary starting point.

Named in turn the **availability bias, representative heuristic,** and **anchoring**, these three behaviors do a good job of derailing our attempts to rationalize about investments. Next came the *Prospect Theory* by Tversky, & Kahneman, (1979) the first attempt at an explanation for a quite strange asymmetric risk taking behavior they had observed. As other academicians and researchers followed up on this research, a whole series of added behavioral biases came to light. We are, no less than a mass of contradictory and illogical behaviors, to the point where it's really a wonder we can get out of bed in the morning, let alone be trusted with the kettle and a gas hob. In the light of these discoveries, it is not surprising that most people are advised to give up attempts to pick individual stocks and instead buy the market through an index tracker instead.

Concept

Behavioral finance is the study of psychological influence on the behavior of financial analysts or investors. The concept also includes the consequential effects on the markets. It emphasizes the fact that investors are not always rational, they have limits to their self-control, and are also influenced by their own biases.

Ritter (2003) in a popular paper under the title "Behavioral Finance" has dealt in depth with the concept. Behavioral finance is the domain where financial markets are examined and studied using models that are less narrow than those that are based on Von Neumann–Morgenstern arbitrage and expected utility theory assumptions. Specifically, behavioral finance has two main building blocks: cognitive psychology and limits to arbitrage. Cognitive means how people think. There is a

huge psychology literature that has documented that people make systematic errors in the manner in which they think: They can be overconfident, they can put too much weight on recent experience, etc. Their preferences can also create distortions. Behavioral finance applies this body of knowledge instead of taking an arrogant approach that it should be simply ignored to their ‘‘correct’’ value. The Efficient Market Hypothesis does not assume that all the investors are rational, but then it does assume that markets are rational. The Efficient Market Hypothesis does not assume that markets can foresee the future, but then it does believe that markets make unbiased forecasts of the future. On the other hand, behavioral finance assumes that, in peculiar circumstances, financial markets are information inefficient. However, not all the mis-valuations are caused by psychological biases. Some are simply due to temporary demand and supply imbalances. For instance, the tyranny of indexing can lead to demand shifts that are not related to the future cash flows of the firm. In December 1999 when Yahoo was added to the S&P 500, index fund managers had to buy the stock even when it had a limited public float. This extra demand pushed up the price by more than 50% in a week and more than 100% in a month. Only eighteen months later, the stock price was down by more than 90% from where it was shortly after being listed at the S&P. If it is easy to take positions (buying undervalued stocks or shorting overvalued stocks) and these mis-valuations are bound to be corrected over a short period, then ‘‘arbitrageurs’’ take positions and eliminate these mis-pricings before they become large. However, if it is quite difficult to take these positions, due to short sales constraints, for example, or if there is no guarantee that the mispricing will be corrected in a reasonable timeframe, then arbitrage will fail to correct the mispricing. Instead, arbitrageurs may even choose to avoid the markets where the mispricing is very high, because the risks are quite big. This is particularly true when one is dealing with a large market, for instance the US market for technology stocks in the late 1990s or the Japanese stock market in the late 1980s. Arbitrageurs who attempted to short Japanese stocks in mid-1987 and hedged by going long in US stocks were proved to be right in the long run, but then they lost huge amounts of fortune in October 1987 when the US market crumbled by more than the Japanese market (thanks to the Japanese government intervention). If the arbitrageurs had limited funds, they would have been forced to cover-up their positions just when the relative mis-valuations were highest, leading to additional buying pressure for the Japanese stocks just when they were most overvalued!

Cognitive biases

Cognitive psychologists have recorded number of patterns regarding behavior of people. Some of these patterns are as follows.

Heuristics

Heuristics, or rules of thumb, makes decision making easier. However, they can sometimes result in biases, especially when things change. These can lead to a suboptimal investment decision. When faced with n number of choices for how to invest their retirement fund, most of the people simply allocate using the 1/n rule. If there are three funds, one-third goes into each of them. If two out of the three are stock funds, two-thirds goes into equities. If only one of the three is a stock fund, one-third goes into equities. Benartzi and Thaler (2001) have documented that many people follow the 1/n rule.

Overconfidence

People are pretty overconfident about their abilities. Entrepreneurs especially are likely to be overconfident. Overconfidence shows itself in a number of ways. One example is very little diversification, because of a tendency to invest too much in stocks that one is familiar with. Thus, people invest in local companies, even though it is bad from a diversification perspective because their real estate (the house they own) gets tied to the company’s fortunes. Think of construction industry employees in Hong Kong or Tokyo or auto industry employees in Detroit, or computer hardware engineers in Silicon Valley. People may invest very heavily in the stock of the company which

they work for. Men generally tend to be more overconfident than women. This shows itself in different ways, including trading behavior. Barber and Odean (2001) studied the trading transactions of investors with discount brokerage accounts. They discovered that the more people traded, the worse they did, on an average. Further, men traded more, and did worse, than women investors.

Mental accounting

People sometimes separate decisions that should, ideally, should be combined. For instance, many people have a household budget entertaining and a household budget for food. At home, where the food budget is present, they will not eat cake or ice-cream because they are much more expensive than bread. In a restaurant, however, they will order cake or ice-cream even though the cost is much higher than a simple dinner. If they instead ate cake or ice-cream at home, and the simple dinner in a restaurant, they could save money. However, because they are thinking separately about food at home and restaurant meals, they choose to limit their food at home.

Framing

Framing is a notion that how a concept is presented to an individual's matters. For instance, restaurants may advertise ''after-theatre'' discounts or ''early-bird'' specials, but they never use any peak-period ''surcharges.'' They get more business if people believe they are getting a discount at off-peak times instead of paying a surcharge at peak periods, even though the prices are identical. Cognitive psychologists have documented findings that doctors make different advices if they see evidence that is seen as ''survival probabilities'' rather than ''mortality rates,'' even though the survival probabilities plus mortality rates add up to 100%.

Representativeness

People tend to under-weigh long-term averages. Rather they try put too much weight on recent experiences. This is at times known as the ''law of small numbers.'' For instance, when equity returns have been quite high for many years (such as 1982–2000 in the USA and Europe), many people believed that high equity returns are ''normal.''

Conservatism

When things change, people generally tend to be slow to pick up on the changes. In other terms, they simply anchor on the way things have normally been. Conservatism bias is at a war with the representativeness bias. When things change, people tend to underreact because of the conservatism bias. However, if there is a long enough pattern, then they tend to adjust to it and possibly over react a bit, underweighting the long-term average.

Disposition effect

The disposition effect indicates the pattern that people avoid realizing paper losses and seek to realizing paper gains. For instance, if someone buys a stock at Rs.30, which then drops to Rs.22 before rising to Rs.28, most people do not want to sell until the stock gets above Rs.30. The disposition effect shows itself in lots of small gains being realized, and few small losses. People generally act as if they are trying to maximize their taxes. The disposition effect shows up in the aggregate stock trading volume. During a bullish market, trading volume tends to grow. If the market then turns bearish, trading volume tends to fall. For instance, trading volume in the Japanese stock market fell by more than 80% from the late 1980s to the mid-90s. The fact that volume usually tend to fall in bear markets leads to the commission business of brokerage firms assuming a high level of systematic risk.

The limits to arbitrage

Mis-valuations of financial assets are common, but it is not that easy to reliably make abnormal profits off of these mis-valuations. Mis-valuations are of two types: those that are recurrent, and those that are nonrepeating and are long-term in nature. For the recurrent types of mis-valuations, trading strategies can reliably make money. Due to this, hedge funds and others focus on these, and keep them under check from ever getting too big. Thus, the market is quite efficient for these assets, at least on a relative basis. On the other hand for

the long-term and nonrepeating mis-valuations, it is quite impossible in real time to identify the tops and bottoms until they have passed. Getting in too early in the market risks losses that can wipe out the capital. Even worse, if small number of partners or other investors are providing funds, withdrawals of capital following a losing streak may lead to selling or buying pressure that can exacerbate the inefficiency. One obvious class of investors who try to make money by identifying mis-valuations are the hedge funds. A relative value hedge fund takes short and long positions, purchasing undervalued securities and then finding highly correlated securities that are overvalued, and selling or shorting them. A macro hedge fund, however, assumes speculative positions that cannot be easily hedged, such as shorting the NIFTY during the last 2 years. How well do efforts by arbitrageurs to make money actually work in practice at making markets more efficient? As Shleifer and Vishny have argued in their 1997 ‘‘Limits to Arbitrage’’ paper, the efforts of arbitrageurs to make money will make few markets more efficient, but they will not impact other markets.

Benefits of Behavioral Finance

Behavioral finance analyzes the psychology behind financial decisions. Behavioural finance departs from traditional finance with the following ideas:

1. Investors are *not* rational.
2. Markets are *not* efficient.
3. The expected return is *not* solely a function of risk.

The behavioral finance concept applies to more than just individual investors. Even experts and professionals are prone to mistakes based on cognitive and emotional biases, From the tulip bubble in 1600s Holland to the U.S. dot-com and housing bubbles of the last couple of decades, investors of all types can fall prey to confirmation, framing and overconfidence biases, among many others. This is a very practical consideration that behavioral finance factors in the process of decision-making unlike a highly unrealistic assumption under traditional finance that rationality will always prevail.

Criticisms of Behavioral Finance

One of the major criticisms of behavioral finance is that by selecting which bias to emphasize, one can predict either overreaction or underreaction. This criticism of behavioral finance might be called as ‘‘model dredging.’’ In other words, one can perhaps find a story to fit the facts to ex post explain some puzzling and complex phenomenon. But how does one make ex ante predictions about which of the biases will dominate? There are two excellent articles that deal with this issue: Hirshleifer (2001) and Barberis and Thaler (2003). Hirshleifer (p. 1547), especially, addresses the issue of when we would expect a particular behavioral bias to dominate others. He stresses that there is a tendency in people to excessively rely on the strength of signals of information and under-rely on the weightage of information signals. This is sometimes called as the salience effect.

Conclusion

The concept of behavioral finance is still in its primitive stages in a country like India. Evolving from popular concepts like CAPM, EMH etc. behavioral finance has of late mushroomed as an interesting and specialized branch of finance. But literature on the concept in India is lacking and definitely more research in Indian context is warranted to get a better understanding of the intricacies of the subject.

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