

READING - 7...THE BEHAVIORAL FINANCE PERSPECTIVE...

d.l.s. (a) Contrast traditional & behavioral finance perspectives on investor decision making;

d.l.s. (b) Contrast expected utility & prospect theories of investment decision making;

d.l.s. (c) Discuss the effect that cognitive limitations and bounded rationality may have on investment decision making;

d.l.s. (d) Compare traditional & behavioral finance perspectives on portfolio construction and the behavior of capital markets;

Warm up :-

↳ Traditional finance assumes a rational economic man [REM] - a person having perfect rationality, perfect self interest, perfect self control, perfect information & perfect cognitive ability.

2) An REM takes investment decisions based on Expected Utility Theory i.e. Optimum Portfolio is the one with the highest Expected Utility (ΣPU).

This has been severely criticized in the reading at several places. However the write up brings in fiction in understanding - so we will do some illustrations to ensure that the write-up feels smooth later on.

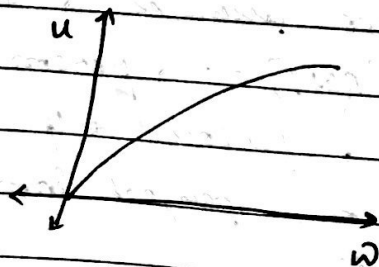
(a) Utility Theory assumes that investors are risk averse.

$$\text{E.g. } U = \ln w$$

$$\therefore \frac{du}{dw} = \frac{1}{w} > 0 \quad [w \rightarrow \text{wealth}] \quad (+ve)$$

$$\frac{d^2u}{dw^2} = -\frac{1}{w^2} < 0 \quad (-ve)$$

This means that for a risk averse investor as w increases, utility increases at a decreasing rate. This gives rise to Concave Utility Function. Law of Diminishing



Marginal Utility holds good. [DMU]

Traditional Finance talks about Utility Theory.

However B/E argues that investors may be risk neutral or even risk seeking - Risk Neutral Investors;

$$u = 0.2w$$

$$\frac{du}{dw} = 0.2 > 0 \quad (+ve) \quad [\text{Constant DMU}]$$

$$\frac{d^2u}{dw^2} = 0$$

As w increases, u increases at a constant rate. This would result in linear utility function.

Risk Seeking Investors;

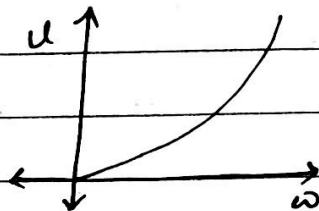
$$u = w^3$$

$$\frac{du}{dw} = 3w^2 > 0 \quad (+ve)$$

$$\frac{d^2u}{dw^2} = 6w > 0 \quad (+ve)$$

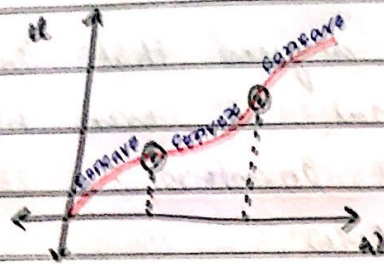
As w increases, utility increases at an increasing rate. Utility function is convex.

[Increasing DMU]



In fact investors often exhibit different risk attitude at different levels of wealth, resulting in Reference Dependent Double Inflection Utility Function.

* Empirical Evidence shows that people accept such gamble if the +ve pay off is atleast 2 times the -ve pay off. (like +2000, -100).



(b) Let us further understand these risk personalities in a different manner;

* Gamble A \rightarrow Payoff of 100 or -100 (+/- type) with a pb of 0.5 each.

- Risk Averse Investor
 - He will reject the Gamble.
- Risk Neutral Investor
 - will be indifferent.
- Risk seeking Investor
 - will accept the Gamble. *

Now, lets imagine another gamble
* Gamble B \rightarrow with a payoff of 1000 (+/+ type) or 2000 with equal pb.

Assuming no opportunity cost, i.e. $R_f = 0$. What is the price that each type of investor would be ready to pay for this gamble?

Ans: Risk Averse investor ready to pay less than 1500 $[(1000 \times 0.5) + (2000 \times 0.5)]$
Risk neutral investor ready to pay 1500.

Risk seeking investor - ready to pay more than 1500.

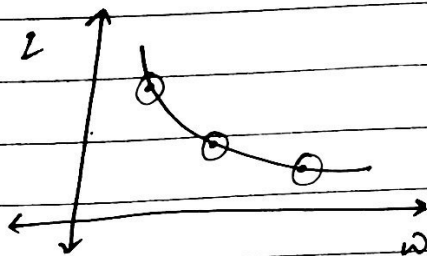
(c) Traditionally, Utility Theory is explained using Indifference Curves [ICs]. The author has taken decision that a worker faces when allocating hours b/w Work & Leisure. Obviously both "w" & "l" have a trc marginal utility.

ICurve is the locus of all those combinations of w & l which give to the worker the same level of utility.

E.g.

<u>Work</u> (hrs)	<u>Leisure</u> (hrs)	<u>Utility</u>	
6	8	250	} $\left \frac{\Delta L}{\Delta w} \right = 2$
7	8	280	
7	6	250	} $\left \frac{\Delta L}{\Delta w} \right = 1$
8	6	270	
8	5	250	

- This means that we have diminishing marginal rate of substitution, resulting in ICs which are convex to the origin.



The above utility theory is criticized :-

- During Economic Downturn, worker may be ready to work more & sacrifice leisure.
- If the worker runs the risk of being fired, he may be ready to work more & enjoy less leisure.

In other words, Behaviour of worker is state dependent (i.e. state of his environment or economy) - which is not captured above.

(d) Utility Theory can be applied on an investor only if he satisfies the following axioms of utility :-

- Completeness - Given two investments "A" & "B", the investor must specify one of the following -

$$u(A) > u(B)$$

$$u(A) < u(B)$$

$$u(A) = u(B)$$

- Transitivity - If $u(A) > u(B)$ and $u(B) > u(C)$, then $u(A)$ must be $> u(C)$

• Independence — If $u(A) > u(B)$, then
 $u[A+(C)] > u[B+(C)]$
 i.e. the addition of a 3rd investment
 should not change our preferences.

• Continuous — If $u(A) > u(B) > u(C)$,
 there must be some combination
 of A & C which has the same
 utility as that of B. Utility preferences
 are continuous.

3.1 Utility Theory v/s Prospect Theory :-

Traditional finance advocates Utility
 theory for Investment Decision making.

E.g. Current Wealth — 200

There are 2 mutually exclusive investments :-

Investment A.

Investment B.

Pb. Terminal

Pb. Terminal

Wealth.

Wealth

0.4 120

0.3 100

0.6 340

0.7 400

Let the utility function be $U = \ln W$

∴ Investment A ;

Pb. W₁ U P_U
 0.4 120 4.79 1.92

0.6 340 5.83 3.49

Expected Utility → 5.40

<u>Inv. B.</u>	<u>P_b</u>	<u>w_s</u>	<u>U</u>	<u>P_u</u>
	0.3	100	4.6	1.38
	0.7	400	5.99	4.19
				<u>Exp. Utility = 5.57</u>

∴ Investor should choose Investment B.

Given the criticism of utility theory, an alternate theory is proposed by Behavioral Finance known as Prospect Theory. # PHASE (2) : Evaluation Phase.

- Investors focus on change in wealth, rather than Terminal Wealth. Please acknowledge that change requires a reference point.
- Investors overestimate the pb of extreme outcomes. So, we should use Adjusted probability through a weighing function. The function gives higher weights (>1) to low pb events & lower weights (<1) to high pb events.
- Investors are loss averse i.e. the dissatisfaction from a given amt. of loss is greater than the satisfaction from the same amt. of gain. So, instead of a utility function, we may use a value function.

$x \rightarrow \Delta$ in wealth.

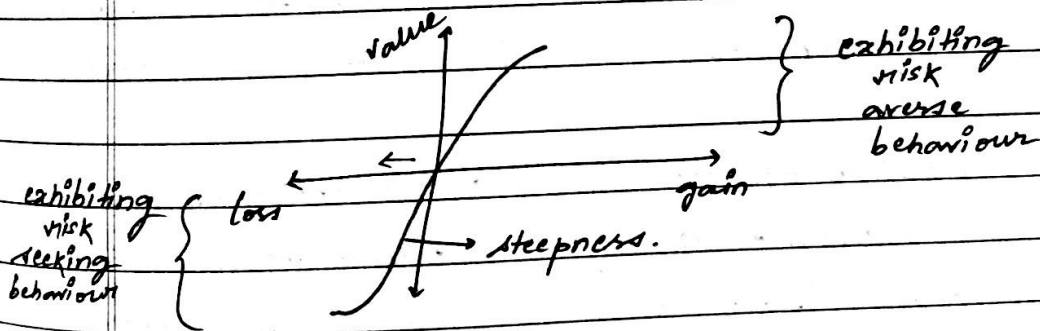
$V(x) = x^2 \rightarrow$ [when $x \rightarrow +ve$]

$V(x) = x^3 \rightarrow$ [when $x \rightarrow -ve$].

<u>Inv. A.</u>	<u>Pb.</u>	<u>Wt.</u>	<u>P*</u>	<u>Δw</u>	<u>$V(x)$</u>	<u>$P^* \cdot V(x)$</u>
	0.4	1.2	0.44	-80	-5,12,000	-225,280
	0.6	0.93	0.56	140	19,600	10,976
		<u>1</u>				<u>-214,304</u>

<u>Inv. B.</u>	<u>Pb.</u>	<u>Wt.</u>	<u>P*</u>	<u>Δw</u>	<u>$V(x)$</u>	<u>$P^* \cdot V(x)$</u>
	0.3	1.2	0.36	-100	-100,00,000	-360,000
	0.7	0.914	0.64	200	40,000	25,600
		<u>1</u>				<u>-334,400</u>

Value Function ; [LOSS AVERSION].



∴ Three differences —

- Loss Averse instead of Risk Averse.
- P^* [weighted pb - Biased pb] instead of P .
- Gain/Loss instead of w .

Obviously one can start evaluating after setting up the problem. This takes place in "Phase - I" known as Editing or Framing Phase.

Investors tend to apply heuristics (short cuts or thumb rule) to simplify the decision making process. This is in sharp contrast to Traditional Finance advocating Utility Theory where investors set up algebraical functions of utility [like $U = (w)$].

The steps in EDITING PHASE :-



Used for single prospects

Used for comparing 2 or more prospects

- Codification - determine gains/losses w.r. to a Reference point.
- Cancellation - eliminate identical outcomes in different prospects.
- Combination - i.e. combine similar items.
- Simplification - rounding off.
- Segregation - segregate certain & uncertain components of a gamble.
- Dominance - \min^m , \max^m & avg of one prospect better than another.

Eg. 1) Inv. A :-

Return	Pb.
8%	0.2
10%	0.3
10%	0.2
20%	0.4

→ 0.4

∴ Clustering i.e. Combination leads to -

8%	0.2
20% 10%	0.4
20%	0.4

Eg. 2)

Pb.	Gain.
60%	50,000
70%	70,000

∴ Segregation :-

100%	50,000	→ certain comp.
70%	20,000	→ uncertain comp.
60%	0	

Eg. 3)

Inv. A.		Inv. B.	
Ret.	Pb.	Ret.	Pb.
5%	1/3	5%	1/3
10%	1/3	10%	1/3
15%	1/3		

[Common item ko hatana]

∴ Cancellation :-

Inv. A.	Inv. B.
5%	10%
15% 1/3 rd	1/6 th 1/6 th

Sl	Inv. A.			Inv. B.	
	Scenario	Pb.	Outcome	Pb.	Outcome
	1	0.5	50,000	0.5	60,000
	2	0.5	70,000	0.5	80,000

∴, Inv. B dominates Investment A.
Hence Inv. A is dropped.

Criticism of Prospect Theory :-

- It can lead to Isolation Effect i.e. Investors preferences become inconsistent based on how things are presented to them.

- E.g. - Sale upto 80% $\frac{1}{2}$ Sale Flat 20%
- - 70% fat free $\frac{1}{2}$ 30% fat.

Isolation Effect occurs as a result of cancellation. Investors focus on only one factor or outcome while consciously eliminating or sub consciously ignoring others.

Note:- One more observation of Prospect Theory - Investors show Risk Averse Behaviour when it involves gain. However they show Risk seeking behaviour when they confront losses.

E.g. Gamble A :- 100% chance - getting 10,000.

Gamble B :-

20% chance - 0

80% chance - 15,000.

- It has been found that investors choose Gamble A - risk averse behaviour.

E.g. Gamble C :- 100% - losing 10,000.

Gamble D :-

20% chance of losing 0

80% chance of losing 15,000.

- It has been found that investors choose Gamble D - risk seeking behaviour.

L.O.S. (a) Traditional v/s Behavioral perspectives in Decision making;

Traditional

Behavioral

- (i) Grounded in Neo-classical Economics / Homo Economics. Grounded in Neuro Economics. (Brain chemistry i.e. Human Behaviour when confronting uncertainty).
- (ii) It is normative i.e. it explains what is normal (what ought to be) - how investors should behave & how mkt. should behave. It is positive or descriptive - it describes how investors actually behave. ^{BFin. Micro.} [BFMI] and how mkt. actually behave. ^{BFin. Macro.} [BFMA]
- (iii) Assumes that Investors are rational [REM] & assumes that mkt. are efficient. Considers Investors to be normal & talks abt. market anomalies.

- (iv) Assumes Investors are Investors may be risk averse exhibiting risk averse, risk DMU with concave utility function & diminishing MRS (marginal rate of substitution) neutral, risk seeking - it depends on the context i.e. on the level of wealth (Double Inflection pt.) & on whether they are experiencing gains or losses. In fact investors are found to be less averse.

- (v) Investors optimize because they are REM. Investors satisfice - they have bounded rationality.

Note:-

REM under Traditional Finance :-

- Perfect Rationality - This leaves no scope for emotions, intuitions, etc. These things are found to play a vital role.
- Perfect Information - In real life, info is costly & time consuming. So, people gather adequate information to take decisions.

- Perfect self Control - In real life, people are not able to exercise perfect self control - They do not save optimum amt. bcz they are not able to control their consumptions.
- Perfect Self Interest - i.e. selfishness - what about social service & altruism.
- Perfect Cognitive ability - Cognitive ability is limited. TF for instance talks about Bayesian updation of information - people don't operate at that level - of course they do update based on new information but only slightly.

L.O.S (b) Expected Utility Theory vs Prospect Theory ;

↳ Expected Utility Theory (TF) :-

- Investors are risk averse.
(concave utility function)
- Investors exhibit perfect rationality, perfect self interest, perfect self control, perfect information & perfect cognitive ability.
- Hence investors optimize by choosing

- among alternatives that maximize EPU.
- Investors satisfies the 4 axioms.

Prospect Theory :-

- Investors are loss averse (i.e. risk averse in gains but risk seeking in losses). Hence value function negd.
 - Investors over estimate low probability events & under estimate high pb events. (Hence wtd. probability i.e. P^* negd. over unbiased pb P)
 - Investors are concerned about gains/losses depending upon a reference point rather than final level of wealth.
 - Since Investors face time constraints, money constraints. (information is costly in real life), cognitive ability constraint, self control bias, etc.
- ∴ They try to act as rationally as possible. Hence they take incremental steps which are positive but not optimal in moving towards their goals. They use heuristics rather than complex algebraic functions. This type of decision making under Prospect theory is known as ^{Imp. word.} Bounded Rationality & satisficing rather than Optimizing.

LOS (c) Effects that cognitive limitations & bounded rationality may have on investment decision making;

- Already covered in LOS (b). Just that they have discussed the Evolution of Decision making :-

Stage (1) : Taking decisions based on Expected Monetary Value [SPx] [EMV]

Stage (2) : Taking decisions based on Expected Utility

Stage (3) : Incorporating risk in the form of s.d., β , Var, etc.

Stage (4) : Presently decision makers are exploring how to incorporate uncertainty. Remember uncertainty is non-quantifiable while risk is quantifiable.

* Self Note :- Three types of notes -

- Class notes
- Notes from Core Reading in the Book (Pg-2 to 39)
- Lesson wise Notes - Wiley
- Pg 50 onwards.

* Advice : Read Class Notes & mark portions of the other (2) which u find Value Additive.

... Please do Q's at the End [EDC Q's] and Extra Q's as well as Case c.g.s.

* Topic Layout :-

• LOS (a), (b) & (c) - BFM..

- Behavioral Finance Micro

- i.e. how individuals deviate from REM & exhibit Biases, like :-

Cognitive Bias - resulting from faulty reasoning, incorrect memory, wrong calculations.

Emotional Bias - resulting from psychological reasons.

Investment Advisers & Wealth Managers will focus on BFM.

Steps

- ① Study the Client.
- ② Note down the biases exhibited by the client.
- ③ Try to correct cognitive bias by educating the client.
- ④ Accept emotional biases.

Conclusion : The resulting portfolio would not be the Mean Variance Optimum Portfolio,

as per TF. However, it would be the best what was possible. (satisficing)

- L.O.S(d) : deals with BEFA...
 - Behavioral Finance Macro
 - study of how markets deviate from Efficient Market Hypothesis (EMH)
 - Economists & Fund Managers got to focus on these :-

Steps

- ① Are markets efficient?
- ② What inefficiencies are present?
- ③ Whether the tests or studies which highlight inefficiencies are actually genuine or reliable?
- ④ What is the rational explanation for those inefficiencies?
- ⑤ Can those inefficiencies be profitably exploited?
- ⑥ Choice of Active or Passive Mgmt?

L.O.S(d) Behavioral Finance perspectives on portfolio constrn & the behaviour of capital mkt. — and compare this with Traditional Finance ;

∴ See Book
— New Pg 7 to 11.

Part - I

- EMH & Q is raised on it.

Part - II

- A Behavioral Finance Theories.

Part - I ;

Traditional Finance

Behavioral Finance

- mkt. price incorporates all available information. $[P_0 = \sum V_0]$. New information gets reflected in stock price instantly & in an unbiased manner.
- several studies suggest that there are anomalies i.e. findings that contradict EMH.

(Technical, fundamental & Calendar).

So, it is not possible to generate abnormal returns (α) consistently & net-off cost.

Advice is to hold a

mean-variance efficient portfolio.

Note:- They have

spoken about weak form, semi-strong form & strong form efficiency.

Proponents of TF have argued that the pricing models

used to test EMH are themselves flawed &/or

net returns of active managers trying to exploit anomalies via Active Management is less than \geq to 0.

Part - II : Bfin Theories :

1) Theories are not established - they are evolving.

2) Four acceptable theories are :-

(a) Consumption - Saving Model -

- Investors suffer from Self Control Bias (less than optimal savings), mental Accounting (categorization of sources of wealth into Current Income, currently owned assets & P.V. of Future Income) and framing bias (like - an year end Bonus or a tax-cut goes into which source of wealth).

(b) BAPM -

- $P_0 =$ P.V. of Expected Cash Flows, discounted @ R_e .
- $R_e = R_f + \underbrace{\text{Fundamental Risk premium}}_{TF}$

TF.

+ Sentiment Risk premium \rightarrow (BF)

- Sentiment RP is also known as stochastic (uncertain) discount factor which depends upon the variations of analyst forecast.

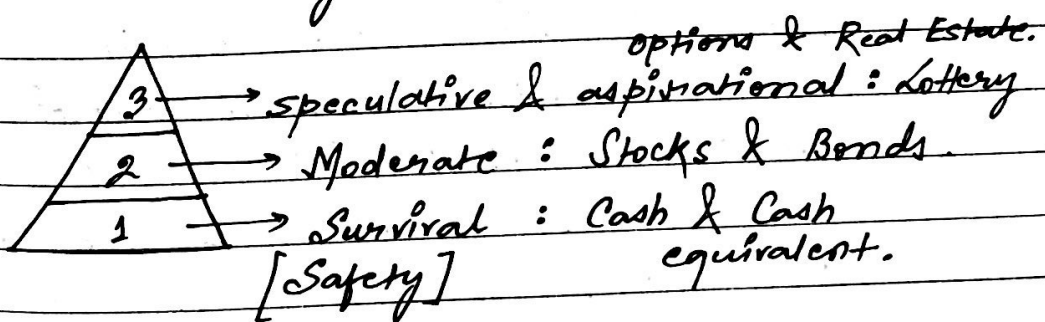
Hence $P_0 \neq PV_0$

Case (1) : If this is systematic, it can be exploited to generate α (abnormal return).

Case (2) : If it is random, it cannot be exploited.

(c) BPT :-

- Investors have several goals. Each goal is categorized by amount reqd., timing & degree of priority.
- Based on these goals, investors choose a layered portfolio approach.



- The above approach of portfolio constrⁱⁱ is also indicative of mental A/cing.

- Although this approach results in quite a diversified portfolio, yet it is not an optimum portfolio as correlation b/w the layers is ignored.
- Allocation to each layer depends on importance of each goal.
- Diversification within each layer depends on :-
 - * Concavity of the utility curve i.e. level of risk aversion — higher the level of risk aversion, greater the diversification.
 - * Perceived information advantage. [those who have an info advantage will invest in specific securities rather than diversifying : Active Mgmt].

(d) Adaptive market hypothesis [AMH].

Step ① : There are certain mkt. inefficiencies. To exploit them, certain heuristics (thumb rule) are discovered. Hence α is generated.

Note :- Thus, we are wanting to say that the optimal techniques to exploit inefficiencies are not found — this relates to prospect theory, bounded-rationality & satisficing — even when

we are generating α - we are not maximising Expected Utility.

Step (2) : As more and more people start using those heuristics, they no longer work. In other words, competition makes existing heuristics useless.

Step (3) : Two categories of participants

(1) - Adaptors.

- They put effort & discover new heuristics. \therefore able to survive.

(2) - Diamasaur type

: fail to survive.

New Pg 41 : Bayes formula [20]

New Pg 43 : Example (3) [Tough]

Soln

$$\frac{x(1.01)}{(1+x)} + \frac{(20,00,000 - x)0.5}{(1-0.5)} = 1,800,000$$

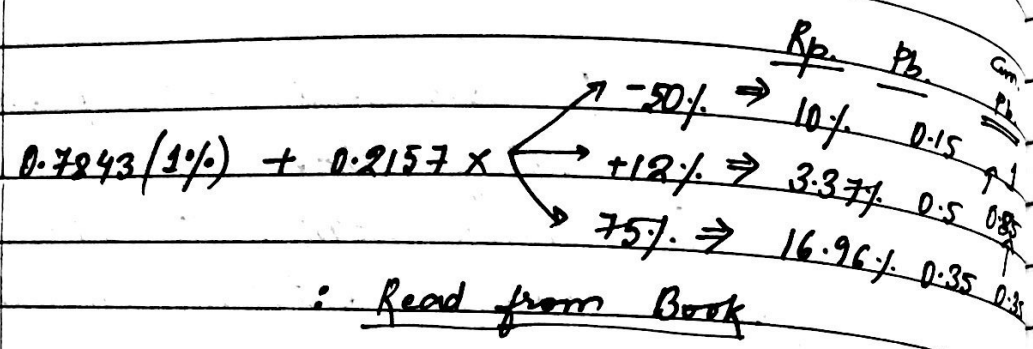
$$\text{or, } 1.01x + 10x - 0.5x = 1.8 \text{ million}$$

$$\text{or, } 0.51x = 0.8 \text{ million}$$

$$\therefore x = \frac{800,000}{0.51}$$

$$= 1,568,627.45$$

To. Distribn of mkt Allocation;



READING : 8

THE BEHAVIORAL BIASES OF INDIVIDUALS...

L.O.S. (a) Distinguish between Cognitive Errors & Emotional Biases ;

L.O.S. (b) Discuss commonly recognized behavioral biases & their implications for financial decision making ;

L.O.S. (c) Identify & evaluate an individual behavioral biases ;

L.O.S. (d) Evaluate how behavioral biases affect investment policy & asset allocation decisions & recommend approaches to mitigate their effects ;

Q.1.5 (a) Distinguish b/w Cognitive Errors & Emotional Biases ;

Behavioral Bias

- | | |
|--|---|
| <ul style="list-style-type: none"> • <u>Cognitive</u>
— arise due to faulty reasoning, information processing, statistical errors, memory errors. | <ul style="list-style-type: none"> • <u>Emotional</u>
— reasoning influenced by impulse or intuition. (feelings) |
|--|---|

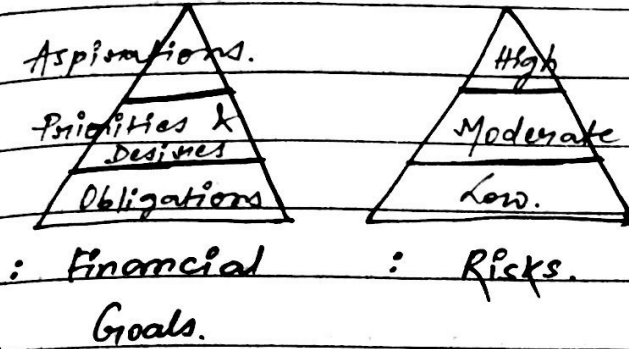
- | | |
|--|---|
| <ul style="list-style-type: none"> — It is possible to moderate or correct this bias by investor education. | <ul style="list-style-type: none"> — Difficult to moderate or correct. ∴ Portfolio allocation has to be adapted. |
|--|---|

Q.1.5 (d) Behavioral Biases — Investment policy & Asset Allocation ;

1) As concluded in 1st chapter, a combination of BFin. & Tr. fin. is the best. This LOS — talks about it.

2) There are 2 methods of incorporating Behavioral Biases in portfolio construction & Asset Allocation :-

Method (1) : Goal Based Investing.
— Repeat of BPT of the 1st chapters.



- Mental Accounting & Loss Aversion :-
- Resulting portfolio is quite diversified, although this was not the objective.

Drawback :-

Correlations ignored. Hence portfolio is not optimal.

Method (2) : BMAA
Behavioral Modified Asset Allocation.

Step (1) : Decide Asset Allocation based on Traditional Finance.

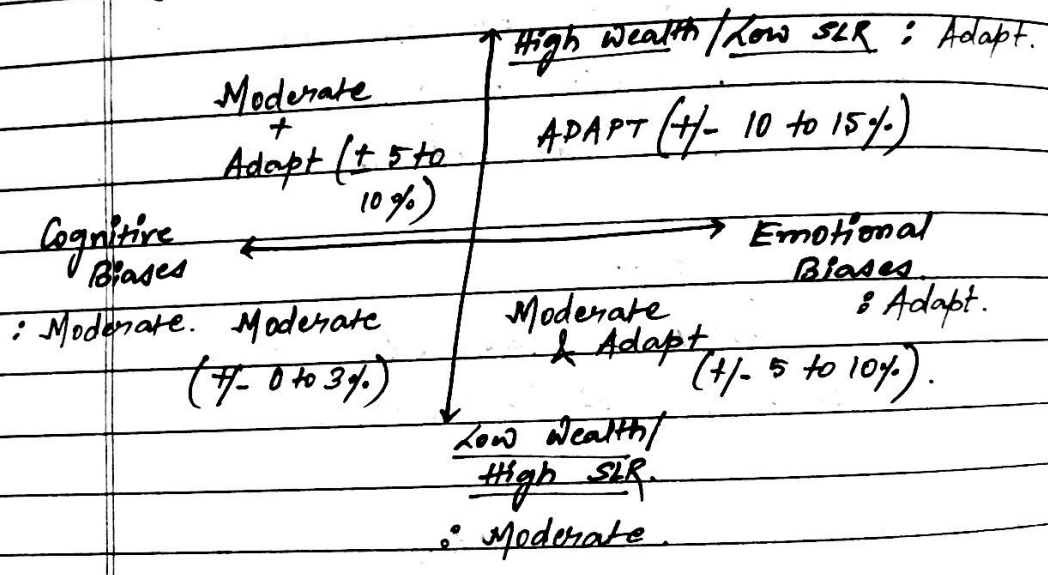
say - Equity → 50%, Bonds → 40%,
Cash → 10%.

Step (2) : Using questionnaires & interviews, identify types of Behavioral Biases in the client.

Step ③ : Understand the effect of these biases on the portfolio.

Step ④ : Consider clients effective wealth i.e. wealth in relation to lifestyle & assess SLR i.e. Standard of Living Risk.

Step ⑤ : Now decide upon the moderation i.e. correction of the biases and/or adaption of the Asset Allocation. (i.e. deviation from SAA).



L.O.S. (b) & (c) Meaning, Identification, Implication & Correction on Different types of Biases ;

: Pg 117 (Q:5)

READING : 9

BEHAVIORAL FINANCE & INVESTMENT PROCESSES...

L.O.S. (a) Explain the uses & limitations of classifying investors into personality types ;

L.O.S. (b) Discuss how behavioral factors affect adviser - client interactions ;

L.O.S. (c) Discuss how behavioral factors influence portfolio constrⁱⁱ ;

L.O.S. (d) Explain how behavioral finance can be applied to the process of portfolio constrⁱⁱ ;

L.O.S. (e) Discuss how behavioral factors affect analyst forecasts & recommend remedial actions for analyst biases ;

L.O.S. (f) Discuss how behavioral factors affect investment committee decision making & recommend techniques for mitigating their effects ;

L.O.S. (g) Describe how behavioral biases of investors

can lead to mkt. characteristics that may not be explained by traditional finance ;

Layout :-

Section ① - Psychographic Profiling of Investors
: Its merits, models & limitations. [LOS-a, b, c]

Section ② - Behavioral Finance & Portfolio Constrⁿ.
[LOS-d & e]

Section ③ - Analyst Bias & Committee Bias. [LOS-f & g]

Section ④ - Behavioral Biases explain market anomalies.
[BFMA]

Section : 4 : Behavioral Biases
explains market anomalies ;

4) Introdⁿ :-

• According to TFin, mkt. are efficient.

• Anomalies :-

persistent abnormal returns which are predictable - this goes against TFin.

• TFin explains that these anomalies are not true bcz -

a) pricing models that are used to measure abnormal return is inappropriate.

b) statistical biases in the studies that throw anomalies.

c) Anomalies may be present on a gross basis but disappear on a net basis.

d) Anomalies may be temporary & they fade away.

• The proponents of BFin. explains that Behavioral Biases present in individuals can be used to explain certain anomalies.

• Anomaly (1) - Momentum ;

• Current mkt returns are correlated to previous mkt. for upto 8 years, without reverting to the mean.

In other words, we may remember the UMD factor i.e. Up minus Down is long position in recent outperformers & short position in recent underperformers tends to provide abnormal return.

• Behavioral Biases that explain Momentum Effect :-

- * Herding [cognitive dissonance - not listening to myself & doing what others do].
- * Availability Bias.
- * Conservative Bias.
- * Regret Aversion Bias.
- * Loss Aversion Bias - i.e. Disposition Effect (losers to stay & selling winners too soon)
- * Hindsight Bias i.e. recreating history as an ego defensive mechanism

• Anomaly (2) : Bubbles & Crashes

- Irrational Buying/selling that causes $P_0 > I_0$ / $P_0 < I_0$.
- Stock price movement beyond ± 2 s.d.
- Crash - 30% fall in a stock, over a short period.
- Bubbles develop slowly as compared to Crashes.

* BFin expln for Bubbles & Crashes :-

- Overconfidence Bias
- Hindsight Bias
- Confirmation Bias
- Regret Aversion Bias
- Anchoring & Adjustment Bias

• Anomaly (3) : Relative Value & Size Anomaly ;

Relative Value Anomaly →
Value stocks outperform growth stocks in the long run.

Size Anomaly → small cap stocks

outperform large cap stocks.

- As per the author, Fama & French Model instead of CAPM - is able to explain the size anomaly, is not true.

However even FFM is not able to totally explain the value anomaly.

- Bfin. explanation of Value Anomaly :-
It's the halo effect i.e.

Investors believe that good Co.s are good investment - those Co.s which have recently done well - Investors extrapolate the recent outperformance [representative bias] [Base case neglect].

This leads to growth stock heavily overpriced. Hence they underperform value stocks in the long term.

Section (1) : Psychographic profiling
of investors ;

1) Benefits of Incorporating BFin ;

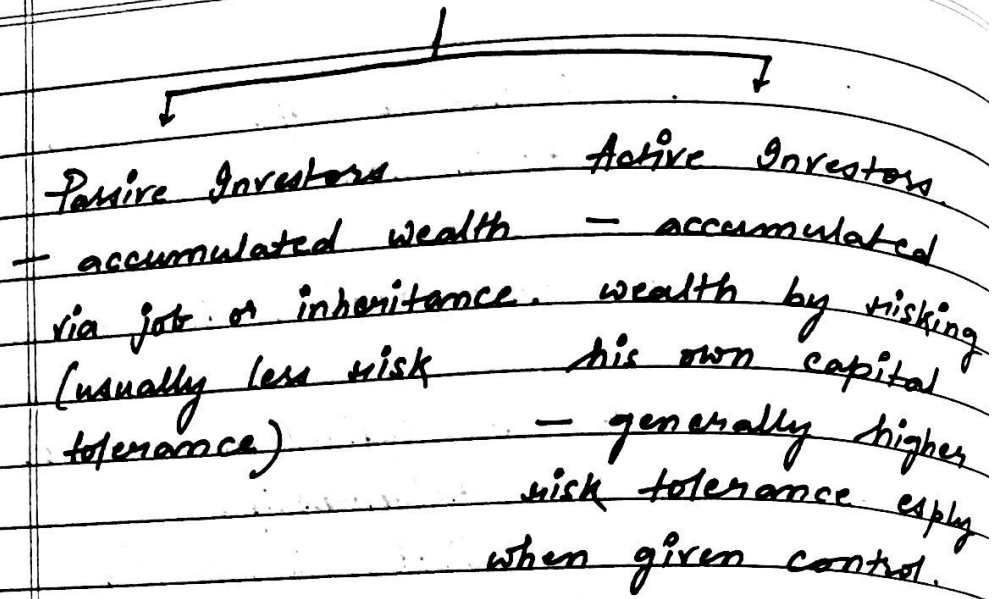
- Portfolio closer to optimum portfolio.
- Better working relationship.
- More likely, that client will stick to his strategic plans.
- More satisfied clients.

2) How to incorporate BFin?

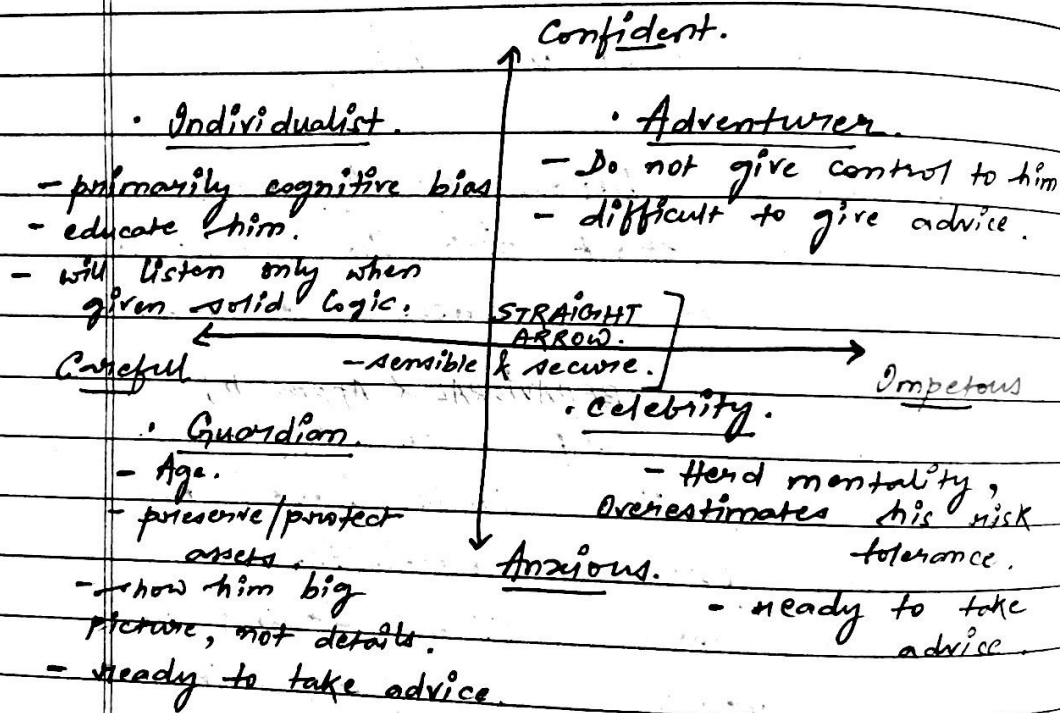
- Method 1) Bottom Up Approach.
— Interact with the client to know what all biases he has.
- Method 2) BEHAVIORAL & Approach;
Top Down Approach.
— Classify clients based on psychographic characteristics.
— Generally clients falling in one category will display similar biases.

3) Classification Models :-

(a) Barneswall Two way Model.



(b) BB&K Five Way Model ;



(c) Pompian → BIT's [Refer Pg: 127]

Passive Preserver → Guardian

- predominantly emotional bias.
- Do not show quantitative details.
- show big picture.
- adapt, rather than moderate.

Active Accumulator → Undiversified portfolio

- Take control out of his hands.

Friendly Follower → Celebrity.

- low to medium risk tolerance.
- Herding.
- primarily cognitive bias
- educate & moderate.

Independent Individualist → Individualist.

- medium risk tolerance.
- primarily cognitive bias.
- educate,
- moderate.

Note:-

If there is inconsistencies b/w Active vs Passive and Risk Tolerance, then Risk Tolerance dominates.

4.) How behavioral factors affect adviser-client relationship?

- Adviser is able to appreciate reasons behind client financial goals.
- Adviser is able to follow a consistent & structured approach.
- Adviser is able to operate as per client's expectations & communicate in an appropriate manner.
- Leads to sustained adviser-client relationship.

5.) Limitations of Behavioral Investor Types [BITs].

- Investor may have both cognitive & emotional biases.
- Individual profiling may change as he ages.
- Individual may possess characteristics of many BITs.
- Even if 2 investors fall in the same BIT category, they still have unique characteristics.
- Investors may abruptly behave in a manner which is inconsistent with BIT.

Note: - Use of Questionnaires to know Investor's Biases & to classify them into BITs :-

- Questionnaires are most effective for Institutional Investors than Investors having primarily cognitive biases [FF & 99], and least effective for Investors having primarily emotional bias [PP & AA].
- Questionnaires are definitely useful but not sufficient.

Section (2) : Behavioral Finance & Portfolio Constrⁿ ;

↳ Biases of Registered M/cs i.e. 401(k) i.e. Defined Contribⁿ plan.

→ Inertia i.e. status quo & default

→ Naive diversification.

(Simple $\frac{1}{n}$ or Conditional $\frac{1}{n}$).

→ Overinvesting in Employer's stock due to familiarity & Over Confidence, Representativeness [extrapolating recent good performance of Employer's stock], Endowment & Framing Bias

(Employer is also contributing his contribution through stocks), Loyalty (i.e. defending the Co. from hostile takeover), Financial Incentives (getting own stock at a concession, tax incentive).

2) Retail Accounts :-

→ Excessive Trading due to Over-Confidence attributed to Illusion of Knowledge & fed by Self-Attribution esp. in rising markets. This typically happens when u trade using a discount broker.

→ Home Bias - Attributed to familiarity & availability.

3) Portfolio Constr. to incorporate Behavioral factors :-

Method ① : Target Date Funds.

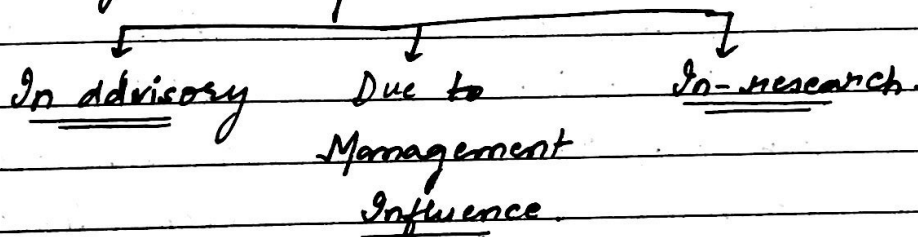
→ Portfolio Constr. will automatically change, i.e. Asset Allocation automatically changes as the person ages. This tackles status quo bias.

However this does not consider clients unique circumstances.

Method (2) :- Layered portfolio or Pyramid Portfolio Approach to tackle mental Accounting & Framing.

Section (3) : Analyst Bias & Committee Bias.

1/4 Analyst Bias



- OverConfidence Bias, fed by illusion of knowledge & self-attribution
- Analyst make biased forecast on Mc of being influenced by mgmt showing noisy picture.
- Over-Confidence. Illusion of Control. Gambler's Fallacy i.e. u believe in Mean-Reversion. Hot Hand Fallacy i.e. mkt. trend will continue.
- Illusion of Control on Mc of using more data or sophisticated models.

- Representative Bias, i.e. Base Rate Neglect.
- Availability Bias, i.e. giving importance to what is easily recallable like newspapers article.
- Confirmation Bias, i.e. paying more attention to info that supports ur view.
- Conservatism & Anchoring.
- Hindsight Bias, i.e. initially u've given subjective forecast without nos & later u are recreating history - proving that u are right.
- Its an ego defensive mechanism.
- Endowment Bias, i.e. attributing stable car to stable growth.
- Confirmation Bias - giving undue importance to info that supports ur story.
- Conjunction Fallacy - adding probability of 2 independent events instead of multiplying them.

Q2) How to remedy Analyst Bias?

- Maintain discipline & systematic approach.
- Prompt & Accurate feedback.
- System of Rewards & Accountability.
- Effective structure which requires documentation.
- Include nos whenever possible so that Hindsight Bias is avoided.
- Attempt to assign probabilities & use the Bayesian approach to combining probabilities.
- Look out for both contradicting & supporting information.
- Using consistent & reliable data [by the Mgmt].

Q3) Behavioral Factors affecting Committee Decision Making :-

- The concept of Committee decision making is based on mitigating individual Biases & coming out with synergistically better outcomes.

- Committee Decision Making is often affected by Social Proof Bias.
- Individuals accept, favour & follow. The judgement of their peers or group disregarding individual view points.
- To mitigate this Bias, one should have committee comprised of diverse individuals, views should be taken before the meeting, fostering culture which encourages contrary opinion.