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ARTICLES /CASES

1. BEHAVIOURAL LIFE CYCLE THEORY

Prasanna Chandra

Portfolio theory is concerned with the *determination* of portfolio by combining asset classes such as stocks and bonds. Life cycle theory, a complement of portfolio theory, is concerned with *accumulation* of assets into portfolios (converting cash into investments) and *decumulation* from them (converting investments into cash).

Standard life- cycle theory is the theory of standard finance whereas behavioural life-cycle theory is the theory of behavioural finance.

In the early 1950s, Franco Modigliani and Richard Brumberg developed the standard life cycle theory, a theory of spending based on the idea that people make rational choices about how much they want to spend at each stage, given the resources available to them over their lives. By building and running down assets, people tailor their consumption patterns to serve their needs at different ages, independent of their incomes at each age. This theory leads to the following significant and non- trivial predictions about the economy as a whole: (a) National savings depend on the rate of growth of national income and not on its level. (b) There is a simple relation between the length of the retirement span and the level of wealth in the economy.

A model in the neoclassical tradition of microeconomic theory, the life cycle theory uses a normative maximising model for descriptive purposes.

Empirical tests of the life cycle theory have met with mixed success. As Paul Courant et. al said, "But for all its elegance and rationality, the life- cycle model has not tested very well.. Nor have efforts to test the life- cycle model with cross- sectional micro data worked out very successfully." To accommodate the data, various modifications to the life cycle theory have been suggested that involve adding a bequest motive, hypothesizing capital market imperfections, assuming that the utility function for consumption changes over time, or specifying a particular form of expectations regarding future income. These modifications appear to be ad hoc as different assumptions are made to explain each anomalous result.

Hersh M. Shefrin and Richard Thaler have modified the life cycle theory to make the theory more behaviorally realistic. They call this enriched model the behavioural life cycle (BLC) theory. The BLC theory enriches the standard life cycle theory by incorporating important behavioral features that are usually absent in neoclassical economic models.

This appendix compares and contrasts the standard life cycle theory and the behavioural life cycle theory.

Standard Life Cycle Theory

Franco Modigliani and Richard Brumberg developed the standard life cycle theory in 1954. Akin to it is Milton Friedman's "permanent income hypothesis" proposed in 1957. The key tenets of standard life-cycle theory are as follows:

1. The sole reason for saving is spending for utilitarian needs. Ideally, the last breath of life and the last rupee of spending must synchronise.
2. We want to smoothen our spending during our life cycle. More precisely, we want to smoothen the marginal utility of consumption and leisure during the life cycle.
3. We estimate accurately our life-cycle wealth, which is the present value of our current income, current capital, and future income. Based on this, we choose a saving and spending path that smoothes our spending during all the years of our life cycle. According to this theory, we spend "permanent income" each year, which represents the amount that will exhaust our life-cycle wealth during our life cycle, although our current income, current capital, and future income fluctuate from year to year.
4. We don't require any tools or help in resolving conflicts between wants. As rational beings, we exercise proper self-control.

Behavioural Life Cycle Theory

The key tenets of behavioural life cycle theory are as follows:

1. We save for deriving a range of utilitarian, expressive, and emotional benefits of wealth. As Meir Statman put it: "These benefits come from spending on necessities such as food and shelter, discretionary items such as recreation and travel, and luxuries such as expensive cars and jewellery. It says, moreover, that mere wealth *owning*, rather than spending, also yields expressive and emotional benefits." The standard life cycle theory assumes that upon reaching retirement, retirees spend down the money and enjoy it. In reality, most retirees continue the growth of their pre-retirement portfolios. This seems to be normal, prudent action for anyone who wants to defend against the uncertainties of a long retirement future and potential impact of inflation. As someone said, "I usually save without having a specific goal because saving money is like a lifestyle."

2. Not all people, however, accumulate median wealth. And even those who want to match spending to “permanent income” have a problem because it is difficult to estimate life- cycle wealth, longevity, and future spending needs. We are exposed to the risk of running out of money before running out of life or vice versa. So, we must build adequate, but not excessive, retirement corpus during our working years. This means that we must refrain from spending our savings too fast or too slowly during our entire life.
3. Behavioural life cycle theory says that we reconcile conflicts between our desire to spend and the need to save by framing, mental accounting, and self- control rules. The standard life cycle predicts that that we regard current income, current capital, and future income as just components of life- cycle wealth, but according to behavioural life cycle theory we regard them as distinct. We put them into separate mental accounts and set self- control rules that permit dips only into designated mental accounts.

A word about self-control, mental accounting , and framing is in order

- *Self- Control* Self-control refers to a situation where a person experiences conflict because he thinks that he should take one decision but emotionally he feels like taking another decision. A person may think that he should save more for future but emotionally he is tempted to consume more now. Self- control is difficult and economic agents use devices like pension plans, systematic investment plans, and rules of thumb to save more. The BLC hypothesis recognises self- control. It also incorporates temptation into the analysis because some situations are not very conducive to saving than others.

The effort involved in self- control involves three things normally ignored in economic analyses: internal conflict, temptation, and willpower. The BLC hypothesis incorporates these features in the standard life cycle model. To capture the conflict between the rational and emotional aspects of an individual’s personality, a dual preference structure is employed. Individuals are assumed to have two sets of coexisting and mutually inconsistent preferences: one concerned with the long run (the planner) and the other with the short run (the doer)

- *Mental accounting* Neoclassical economics 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. People, however, do not have the computational skills and will power to evaluate every decision in terms of its impact on overall wealth. So, they act as if they use a system

of mental accounts which violates the principle of fungibility. Mental accounts that are considered “wealth” are less tempting than mental accounts that are considered “income.”

The BLC hypothesis assumes that wealth is divided into three mental accounts, viz., current income, current assets, and future income. It is assumed that the temptation to spend is the greatest for current income and least for future income and in-between for current assets.

- *Framing* There can be different ways of describing a decision problem and it appears that people’s decisions are influenced by the manner in which a problem is described or “framed.” Given the differential temptation of various mental accounts, the saving rate can be affected by the way in which increments to wealth are “framed” or described.

Pyramids for Spending- Sources and Spending- Uses

According to behavioural life- cycle theory, there are pyramids of “spending – sources” and “spending- uses” as depicted in Exhibits 9C.1 and 9C2. These pyramids are similar to portfolio pyramids discussed earlier. The pyramid of spending- sources has layers that are arranged from those tapped first (beginning from the bottom) to those tapped last. The pyramid of spending – uses has layers that are arranged from those with higher spending priority (beginning from the bottom) to those with lower priority.

Exhibit 1 *Pyramid of Spending – Sources*

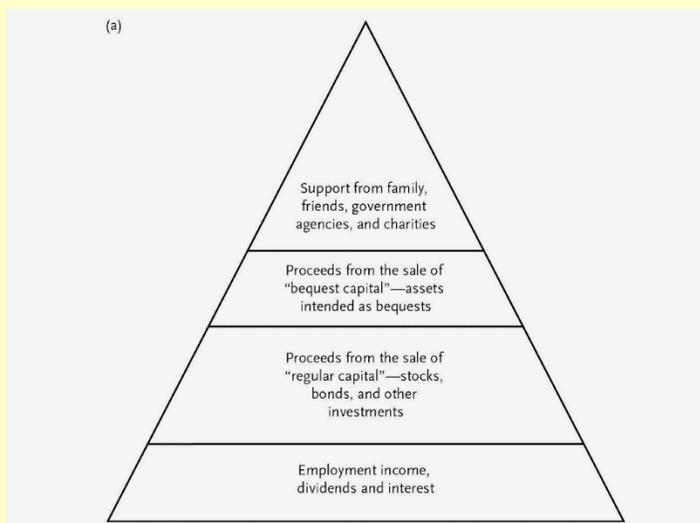
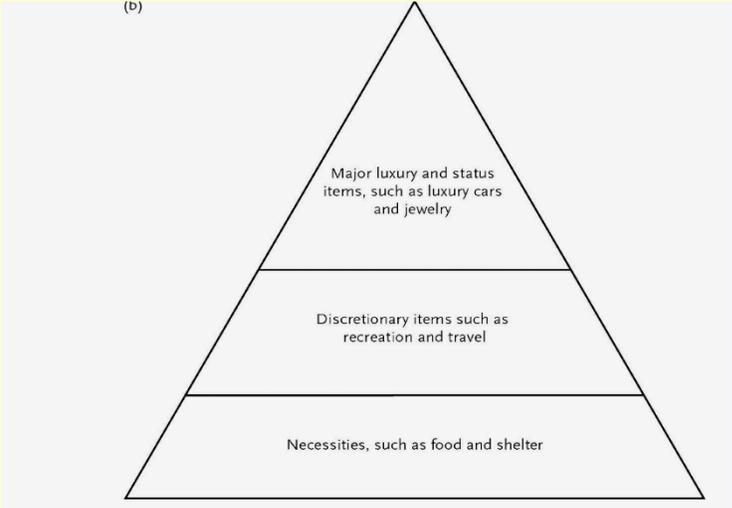


Exhibit 2 *Pyramid of Spending – Uses*

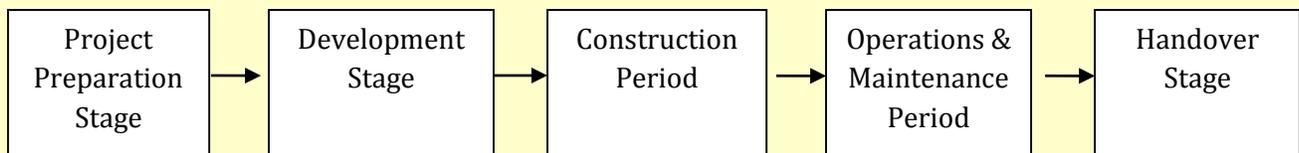


2. TECHNICAL FEASIBILITY FOR INFRASTRUCTURE PROJECTS

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Infrastructure projects are highly capital intensive, have long economic life, and have a significant impact on the lives of people. Given the massive investments in infrastructure proposed by the government, a great thrust is being given on the PPP (public private partnership) model. A PPP is a contractual arrangement between a government or statutory entity on the one side and a private sector company on the other side, for delivering an infrastructure service.

The different stages of a PPP project development lifecycle are as follows:



The project preparation stage involves identifying the project need. The development stage comprises activities such as project feasibility study, project structuring, bid documentation, and selection of a private partner. The private partner then has the responsibility for the construction and operation and maintenance (O & M) period. The last stage involves handing over of the project facilities from the private partner to the public entity after the expiry of the agreement period.

It is crucial to justify infrastructure projects from technical, financial economic, social, and environmental angles.

The technical feasibility of an infrastructure project to be done under the PPP model is generally done by the public entity once a project is identified and prior to project structuring stage.

According to the *PPP Guidelines for Practitioners* prepared by the Ministry of Finance, Government of India, technical feasibility studies should address the following questions:

- What are the various engineering/ design options and the optimum option?
- What is the cost associated with and service levels expected of the various engineering/ design options?
- Which of the engineering/ design options would be amenable for implementation by the private sector?

- How does each of the options affect environment and the society?
- What could be the public entity's extent of involvement in land acquisition and associated infrastructure creation, such as connectivity, water supply, power, etc.

B. SNIPPETS

1. BEING A CONTRARIAN

Being a contrarian is not easy, because even the best investors have difficulty in overcoming the pressure of conformity. Three qualities are required to overcome the pressure of conformity. The first is *courage*. As the legendary hedge fund manager Michael Steinhardt said, "The hardest thing over the years has been having the courage to go against the dominant wisdom of the time, to have a view that is at variance with the present consensus and bet that view."

The second quality is *critical thinking*. As Joel Greenblatt noted, "You can't be a good value investor without being an independent thinker- you're seeing valuations that the market is not appreciating. But it's critical that you understand why the market isn't seeing the value."

The final quality is *perseverance and grit* to adhere to your principles. As Ben Graham noted, "If you believe that the value approach is inherently sound the devote yourself to that principle, stick to it, and don't be led astray by Wall Street's fashions, illusions and its constant chase after the fast dollar. Let me emphasize that it does not take genius to be a successful value analyst, what it needs is, first, reasonably good intelligence; second sound principles of operation; and third, and most important, firmness of character."

Only when you master these three qualities, you can go against the grain of the crowd, and reap investment returns.

2. ARCHETYPES FOR VALUE CREATION

According to McKinsey & Company, the strategic rationale for an acquisition that creates value for acquirers typically falls into the following six archetypes:

1. Improve the performance of the target company.
2. Consolidate to remove excess capacity from an industry.

3. Create market access for the target's (or, in some cases, the buyer's) products.
4. Acquire skills or technologies more quickly or at lower cost than they could be built in-house.
5. Exploit a business's industry-specific scalability.
6. Pick winners early, and help develop their businesses.

3. SHIFT FROM LOANS TO BONDS

While companies across the world raise debt funds using a mix of bank loans and bond issues, Indian companies traditionally have relied heavily on bank loans. Not much was done to develop the corporate bond market in India. Thanks to the mounting non-performing loans of the banking sector which is dominated by public sector banks, serious initiatives are being taken to shunt companies away from banks and toward bonds. Two such policy measures deserve a special mention. First the maximum bank borrowing permitted for a company by 2019 has been set at Rs. 10,000 crore. Second, banks will be allowed to use corporate bonds as collateral for borrowing under the central bank's "repo" facility (presently only government banks are permitted). Once banks can use their holdings of corporate bonds for "repo" purposes they will have greater appetite for such bonds, either as creditors or as market-makers in their investment-banking roles. This will facilitate the buying and selling of bonds by institutional clients.

If these initiatives and other measures meant to create a vibrant corporate bond succeed, we will see a significant shift from loans to bonds in India.

4. BUILDING A CULTURE OF TRUST *

A culture of trust enhances organizational performance. Paul J. Zak, a neuroscientist, says, "Employees in high-trust organizations are more productive, have more energy at work, collaborate better with their colleagues, and stay with their employers longer than people working at low-trust companies. They also suffer less chronic stress and are happier with their lives, and these factors fuel stronger performance." The 2016 Global CEO Survey of PWC reported that 55% believe that a lack of trust threatens their organization's growth. Says Zak, "Compared with people at low-trust companies people at high-trust companies report: 74% less stress, 106% more energy at work, 50% higher

productivity, 13% fewer sick days, 76% more engagement, 29% more satisfaction with their lives, 40% less burnout.”

Based on his experiments and surveys, carried over a long period, Zak has identified eight management behaviors that foster trust:

1. Recognize excellence
2. Induce “challenge stress”
3. Give people discretion in how they do their work
4. Enable job crafting
5. Share information broadly
6. Intentionally build relationships
7. Facilitate whole- person growth
8. Show vulnerability

*Adapted from Paul J. Zak “The Neuroscience of Trust,” *Harvard Business Review*, January-February 2017.

5. THE FOURTH INDUSTRIAL REVOLUTION

The Third Industrial Revolution that began in the mid- 20th century was about computerization . We are now experiencing the Fourth Industrial Revolution, which according to Ankit Jamwal, Director, Information Services (ISG), “builds on this first wave of computerization with the latest, rapidly evolving and disruptive advances in technology: the Internet of Things, the Industrial Internet, robotic process automation, autonomous vehicles, artificial intelligence, 3D printing, cyber- physical systems and connected wearable devices.”

As these sophisticated tools and technologies converge they will have significant impact of every aspect of business: R & D, manufacturing, IT, HR, and finance.

As far as financing is concerned, manufacturers are exploring new financing methods as they invest in advanced machinery and software to fulfill the promise of Internet of Things, involving digitalization and advanced tooling. A variety of purchase/ service hybrid arrangements are being used and financial executives are looking at “fourth generation” of financing which looks “like a service contract by a service provider to a service user.”

PART C: WIT AND WISDOM

1. HUMOUR

- A man was charged for beating another person. When he was produced in the court, he pleaded to the judge for three reasons.
 - I was not in town on the day the person was beaten.
 - I adhere to a religion which proscribes violence.
 - He hit me first.
- An old man went to the doctor and complained about a terrible pain in his leg. After examining him, the doctor said, "It is due to old age and I can't do anything about it." The old man fumed, "That can't be. You are incompetent." The doctor countered, "How dare you say that." The old man replied, "It is quite obvious- because my other leg, which is exactly the same age, is quite fine."

2. WISE SAWS

- The free thinking of one age is the common sense of the next.

Matthew Arnold.

- When you are content to be simply yourself and don't compare or compete, everybody will respect you.

La- Tzu.