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Behavioral Corporate Finance : A Brief Review

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Abstract:- Traditional corporate finance focuses more on what business leaders are supposed to do than what they do now. Behavioral approach is designed to examine what they actually do, why they do it, and make suggestions on how they could do their jobs better. The main goal of this brief review is to understand psychological phenomena related to business behavior problems and how they affect financial decisions. Indeed, these phenomena involve general human characteristics, they affect managers and investors. So, managers need to understand how these phenomena affect their own judgments and decisions; however, they also need to understand the decisions of other managers, as well as the decisions of the investing public whose trading activities determine market prices.

Keywords:- *Corporate Finance, Behavioral Finance, Traditional Finance, Psychological phenomena, Brief review.*

I. INTRODUCTION

Behaviorism in finance deals with the mechanisms affecting people's choices and judgments. These mechanisms are categorized into two groups:

- Biases & heuristics; and
- Framing effects.

The foundation of the behaviorism in finance is implementation of research on decision-making by the financial manager, and the practice of this perilous decision-making process. This leads suggesting that the imperfections of business decisions are intensively linked to the psychological vulnerabilities of human.

Beyond the simple understanding of the psychology of the leader, the study of behaviorism in finance aims to create value by transmuting human-psychological vulnerabilities into financial levers.

So, this review studies how biases combined with mental shortcuts (heuristics), often considered by the subject as a removable rule, influence the Gains/Loss equation of companies. Otherwise, this article draws an analogy between traditional finance and behavioral finance based on major topics in corporate finance.

II. APPLIYING BIASES, HEURISTICS AND FRAMING EFFECTS TO FINANCIAL DECISIONS

A. Biases and Heuristics

These are specific psychological phenomena, intrinsically linked to the way our brain works. To be able to dissect them from our cognitive vortex, psychologists [1] have suggested categorizing the functioning of the human brain into two main groups:

- The intuitive brain called System I
- The deliberative brain called System II

These two systems constitute the so-called theory in psychology: “Dual System” [2].

Naturally, the intuitive System I shows performance that is sometimes surprising and abrupt, due to the absence of a long time of cognitive computation. So, he is more prone to error, reckless and impulsive.

The System II often seems to choose to make thoughtful and balanced decisions. That said, it is not always easy to have the necessary mental resources to perfectly compile such an intellectual load.

Applied to finance, this Dual System theory embodies all the difference that exists between classical finance and behaviorist finance [3]. The classical one advocates all System II principles, such as the rationality of individuals and the efficiency of markets. On the other side, behavioral finance adds a new explanatory strain of decisions in finance, for instance the mechanisms of the intuitive brain.

Thus, the study of System I aims to help managers make better decisions, by becoming aware of the main psychological and heuristic biases which, obviously, are omnipresent in all decision-making processes.

➢ *Description of Biases and Heuristics*

The main psychological biases are [4]:

- *Over-optimism*

Individuals tend to overestimate the probability of having positive outcomes and underestimate the probability of having negative ones.

- *Overconfidence*

Individuals tend to be overconfident in their level of intellectual knowledge (without necessarily being unaware or incompetent). These individuals often identify themselves with being above average people.

- *Confirmation bias*

Individuals often spend more time seeking information that supports their own positions, and sometimes "force" an executive committee to converge on that position.

- *Control illusion*

People overestimate the control they have over events and transitively over desired results.

Otherwise, the main heuristics are [4]:

- *Representativeness & Conjunction Error*

In this case, decision making is dependent on heuristics relying on analogies and stereotypes. Representative thinking generates systematic errors called: Conjunction error.

- *Availability*

Individuals first focus on previously available information to make decisions; it can be experience, memories, …etc.

- *Anchoring*

Individuals remain stuck on ideas, figures or judgments and carry out adjustments based on additional information received.

- *Affection*

Decision-making is fundamentally linked to intuition, instinct, and mindset.

- *Interaction phenomenon*

It is an amplifying phenomenon that assumes the existence of a bias or heuristic can have a cause-and-effect relationship on other biases or heuristics. The coexistence and interaction of these can create an amplifying effect on the individual action/reaction.

➢ *Appliying Biases and Heuristics to financial decisions*

The illustration of the biases and heuristics' effect on financial decisions [5] is presented in the table below:

Biases & Heuristics	Items	Effect on Financial Decisions
Biases	***Over-optimism***	Neglecting cost reductions during a recession. **Significant impact on profit for the year.**
	Overconfidence	Making acquisitions with fragile fundamentals. **Reduction in the company value because of the poor performance of these investments.**
	Confirmation bias	Ignoring information from recognized sources that are opposite to the manager's point of view. **Significant impact on profit for the year.**
	Control illusion	Overestimating the degree of risk control. **Significant impact on profit for the year.**
Heuristics	***Representativeness & Conjunction Error***	Choosing the wrong project based on poor forecasts. **Reduction in the value of the company.**
	Availibility	Choosing the wrong project based on poor forecasts. **Reduction in the value of the company.**
	Anchoring	Staying fixed on a number by making insufficient adjustments. **Reduction in the value of the company.**
	Affection	Rely on intuition instead of financial analysis. **Reduction in the value of the company.**

Table 1:- effect of biases and heuristics on financial decisions

B. Framing Effects

The framing effect refers to the way in which individuals are influenced by the environment and the context of the decision-making process [6]. The way of describing/presenting a problem alone can influence the approach that an individual will adopt during his reflection and will naturally arouse one or more psychological mechanisms. The framing effect is indeed made up of several theories, intimately intertwined, founding behavioral finance. Developed mainly by Kahneman and Tversky, it is considered the basis of the famous prospect theory [2].

➢ *Description of Framing Effects*

- *Basic Theories*

✓ *Risk Aversion [7]*

Individuals are risk averse when it comes to significant potential gains. However, they show a preference for risk when considering a loss.

✓ *Fourfold Risk Pattern [8]*

Contrary to risk aversion which suggests two possible scenarios (absolute gain or absolute loss), the Fourfold Risk Pattern (FRP) highlights four scenarios describing an individual's likely attitudes to risk: (1) risk seeking on low probability gains, (2) risk aversion to high probability gains,

(3) risk aversion to low probability losses, and (4) risk seeking on high probability losses.

- *Related Theories*

✓ *Prospect Theory [2]*

Unlike utility theory [9] which assumes that individuals are rational and make choices that provide them maximum utility, prospect theory incorporates the mental sensation linked to anticipations of gains and losses. Thus, individuals fix their choice according to **a reference point**, which is subjective and personal. It means that the perception of gains and losses differs from one individual to another and does not systematically imply rational behavior.

✓ *Narrow/Broadly Framing*

In the continuity of prospect theory [2], the way in which the individual frames a risk, substantially impacts decision-making. Two ways are naturally distinguished: Narrow Framing, which deals with the risks one by one; and Broadly Framing which treats risks as a single whole.

✓ *Aspiration Point & SP/A Theory [10]*

The reference point constitutes both the innovation and the limit of prospect theory. Determining a common reference point is practically impossible since it results from several specificities. That said, natural reference points are distinguished, such as zero in most financial performance indicators. However, it does not prevent individuals from aspiring to several other reference points: this is called the SP/A (security, wealth/success). SP/A theory interprets "fear & hope" emotions and their impact on decisions.

✓ *March-Shapira Framework [11]*

Applying SP/A theory, the March-Shapira Model assumes that a firm in "desperation" takes substantially low risk. The curve reverses once the financial situation begins to improve as well as his "hope".

✓ *Debiasing [12]*

"Debiasing" or mitigating errors is one of the purposes of studies in behavioral finance. This is a set of major interventions, such as corporate culture strategies, and minor ones, so-called "Nudges".

✓ *Nudge [13]*

The "Nudge" can indirectly influence individuals in their economic choices.

➢ *Appliying Framing Effects to financial decisions*

The Table 2 presents the basic theories' effect of framing effects on financial decisions [14]:

Framing Effects	Influence on financial decisions
Risk Aversion	Granting debt at high rates, in a context that anticipates a drop in rates. As a result of the decline, the company no longer grants debt. **Shortfall in low-cost growth. Forgo the tax savings due to finance charges.**
Fourfold Risk Pattern	Investing in markets with a high probability of losses and consequent gains, as binary options market. **Reduce the value of the company by impacting the quality of the assets held, and the losses generated by them.**

Table 2:- Influence of framing effects on financial decisions

III. THE BEHAVIORAL APPROACH AND MAJOR TOPICS IN CORPORATE FINANCE

After highlighting the main indicators of behavioral finance (biases & heuristics and framing effects), this review draws an analogy between traditional finance and behavioral finance from the point of view of company valuation methods, capital structure, dividend policy, agency conflicts and corporate governance, mergers and acquisitions, and group financial management.

A. Company Valuations

Typically, there are two main valuation approaches in traditional finance [15]: 1) valuation by intrinsic value (like the DCF) and 2) valuation by comparables (like the P/E ratio). These methods are often combined and weighted by analysts and CFOs.

As it is known, valuing a company is primarily a first step in setting its price or determining a reference point at the target price [15]. That said, in mergers and acquisitions, the price is certainly a long negotiation process, the valuation of which is only one argument among others.

The valuation methods emanate from a flawless compendium of classical financial theory; made up of sophisticated formulas and great mathematical and accounting rigor [16]. However, in practice, the valuation of capital highlights the use of heuristics and demonstrates a particular vulnerability to the biases of individuals undertaking valuation work.

On the one hand, comparable methods based on formulas that are true by definition (tautology), are ultimately based on the judgments of analysts on the similarities that a group of companies would have with the one they are trying to value [15]. Also, the choice of ratios to be able to make this comparison is even more intuitive and emotional for analysts. The terms of these ratios undoubtedly depend on the judgments of analysts, i.e.: P/E and dependence on the estimate of future results [17].

On the other hand, intrinsic methods do not escape this "human" nature. The estimation of future financial flows is obviously the victim of overvaluations or undervaluations due to biased assumptions [17]. Several case studies [18] are made and will have to be conducted more to identify the impact of biases and heuristics on the growth assumptions in

the intrinsic valuation models, i.e.: the case of high-tech companies in the early 2000s (Ebay [19], Amazon, Apple, Microsoft, … etc.).

B. Capital Structure

The capital structure is a concept closely linked to the two major decisions of a company: 1) the financing decision and 2) the investment decision [20]. The first aims to restore balance and financial fundamentals, the second aims above all to maximize the asset present value.

The traditional approach adopts two main assumptions: 1) the rationality of managers and 2) the efficiency of markets. In contrast, the behaviorist approach mitigates these two assumptions: managers are humanly imperfect and vulnerable to psychological pitfalls [20]. Also, market prices often deviate from their fundamental value in the most efficient markets, or at least they are on paper.

➢ *BPV: Behavioral Asset Present Value*

This is an important theory in behavioral economics in general. Originally developed by economists Malcom Baker and Jeffrey Wurgler [20], the BPV is a critique of the classic APV model that places importance on the point value of society.

In practice, managers are constantly in a dilemma forcing them to balance between the long-term value of the company and its short-term value [21]. It goes without saying that deciding to maximize one value does not always mean maximizing the other value.

The BPV is a combination of the long-term (VL) and short-term (VS) values of the company, it is written BPV = VL + aVS, "a" being a non-negative weighting giving rise to the importance of the short-term value [20]. Thus, the decision (of financing or investment) of managers must assess its impact on the two values of a company [22]. In practice, it is very rare to find managers who maintain a balance between the two values [23].

➢ *How do managers decide on the capital structure in practice?*

The behavioral approach of capital structure suggests that firms with overly optimistic and overconfident managers use more financial leverage, invest more than other firms, and their investment policies exhibit excessive sensitivity to cash flow [24].

Under certain circumstances, framing effects can operate in the opposite direction and prevent some firms from fully exploiting their debt capacity [25].

Decision	Discussion
Capital increase: Market timing	Managers tend to issue new shares when the stock market is overvalued. However, the dilution of the capital and thus of the earnings per share is the more decisive.
Debt and financial flexibility	It goes without saying that debt hinders the flexibility of managers to take advantage of new opportunities and hence to be able to take on more debt. Debt market timing allows managers to choose periods of low interest rates or attractive risk profiles to best maintain the company's flexibility.
Debt/CP ratio	Targeting an optimal level of this ratio has already been long discussed in classical theory. From a behavioral perspective, managers tend to have personal aspiration points reinforced by biases of overconfidence or overoptimization, … etc.
Pecking order	In practice, managers seem not to respect this pecking order. The choice of financing among others depends a lot on the evolution of the company's value and its market.

Table 3:- Capital Structure Decisions Practice

C. Dividend Policy

Dividend and redemption policies are linked to framing effects. In the traditional Modigliani and Millier approach [26], people are assumed to be insensitive to framing effects. In the behavioral approach, mental accounting and framing effects lead individual investors, who consider dividends as attractive, to develop a heuristic that dividends are a necessity, and their absence inevitably becomes penalizing [27].

Older and retired investors find dividends attractive because they regard dividends as a replacement for wages and salaries. Young salaried investors find dividends attractive because regular dividends make it easier for them to tolerate stock market risk.

Concerning dividend policy, psychological phenomena matter particularly [28]. Indeed, managers have developed a heuristic to respond to the psychological needs of investors. These heuristics involve smoothing dividends per share around salient and memorable numerical values.

By following these heuristics, managers send important signals to stock markets [29]. However, behavioral signal is different from traditional signal, which aims first and foremost to stand out from competitors, but above all to reassure the investor who sees in it a yield value, or even a safe-haven in his portfolio [29].

Prices are impacted by changes in dividend policy and share buybacks. Share buybacks don't need to be regular, whereas dividend payouts entail much more a commitment to regularity [30]. Many of these impacts lead to price distortions, including drift effects. Markets react to both dividend omissions and dividend payouts, and the strength of the price impact is twice as great in the case of omissions [28].

D. Agency Conflicts and Corporate Governance

Incentive compensation is at the heart of good corporate governance [31]. In this regard, a company's board of directors must ensure that executive compensation is sufficient to attract and retain talented managers, that compensation plans serve to align the interests of managers with those of shareholders and that managers are not overpaid.

In practice, empirical evidence indicates that executive compensation has too little variability in performance pay, under-dismissal, and over-payment for executives [32]. Directors' comments reveal that corporate board members have been overconfident in their ability to structure incentives appropriately without overpaying senior executives. Administrators also suggest that their tasks are made more difficult by the executives' overconfidence [32].

In traditional theory, employee stock options are used to align the risk attitudes of managers and shareholders [33]. Indeed, according to the traditional approach, the inability of managers to diversify their portfolios, as well as shareholders, leads them to be more risk averse than shareholders.

However, managers who behave in accordance with prospect theory, might find the risk characteristics of attractive call options due to their casino effect [34]. In this regard, stock options could also induce risk-seeking behavior due to the tendency to overweight low probabilities [31].

Moreover, companies seem to pay options to their employees when they are inclined to overvalue these options. The combination of aspirational risk-taking and overconfidence can also induce ambitious and unethical managers to manipulate accounting information, to exercise their stock options when the stock is too expensive [34].

With this aim in mind, a combination of behavioral phenomena and agency conflicts has affected some accounting firms [35]. These events were the catalyst for the passage of the Sarbanes-Oxley Act. Similarly, the global financial crisis was the catalyst for the passage of the Dodd-Frank Act, with its "say on pay" provision [34].

The combination of regulatory changes and real events appears to have dampened the growth of performance-based compensation measures, shifting from stock options to restricted stocks [36].

E. Mergers and Acquisitions

Generally, the more optimistic and overconfident managers are, the more they engage in acquisitions and the more they leave their investors vulnerable to the winner's curse [37].

In situations where a company's market value roughly measures its intrinsic value, overly optimistic and overconfident leaders overestimate the synergy of acquisitions but believe their own companies are undervalued [38]. As a result, these executives prefer to pay for target companies using cash instead of stock.

A long-time holder is an executive who holds his call options until very near expiration. Executives who are overly optimistic and overconfident are particularly prone to engage in acquisitions and prefer to pay in cash rather than stock [37]. Also, they tend to brush off the negative market reaction to their acquisition announcements, instead of pursuing what the market deems to be bad acquisitions.

Acquirers who always trust prices make themselves vulnerable to the winner's curse at times when investors are irrationally exuberant about target companies [39]. The acquisitions of WorldCom are an example of this. Targets that still trust prices and accept payment in the form of stock from the acquirer make themselves vulnerable to seller's remorse stemming from restoration (the flip side of the winner's curse). Time Warner provides another example. Business leaders who participate in acquisitions often do so when they perceive themselves to be operating in the realm of losses.

The acquisition of Compaq by HP illustrates this phenomenon [40]. Indeed, the HP–Compaq example serves to illustrate the psychological phenomena that guide the thinking of managers and directors. However, executives don't need to think of themselves as being in the losing streak to make acquisitions that increase risk [40]. CEOs, who are younger than average and hold below-average positions, are prone to making risky acquisitions, especially if they seek thrills in other ways, such as flying private jets.

Valuation is subjective, and for this reason, leaders rely on heuristics that exhibit psychological phenomena such as anchoring to recent stock price highs, particularly the 52-week high [38].

F. Group financial management

Group financial management combines finance and business management, focusing on how people work together in groups to make financial decisions and judgments [41]. Valuation and risk assessment are examples of corporate financial judgments. Budgeting, merger and acquisition activities, capital structure and bonus plans are, in turn, business decisions.

In addition, business processes, and more broadly the corporate culture, define the environment and the framework in which these judgments and decisions are made [42]. On that point, financial management is not just a piecemeal set of skills for making judgments and decisions about the individual elements that make up corporate finance. But it is also an integrated approach that focuses on the human elements that underlie these group processes [41]. Identifying process losses and the lessons to be learned to mitigate them is at the heart of how lessons learned from behavioral corporate finance can increase value [43].

In theory, the group process adds synergistic value to the efforts of individual group participants [43]. In practice, three factors lead this synergy to be less than maximum, and sometimes negative [44]. First, although synergy is positive for intellectual tasks, it is generally negative for judgmental

tasks. Second, the group process often leads to polarization about attitude towards risk. Third, group discussion usually leads its members to feel more efficient than expected, a form of group overconfidence known as the illusion of efficiency.

On the other hand, there are three main reasons why judgment tasks have negative group synergy [45]: groupthink, information asymmetry, and inadequate motivation. Inefficient group processes plagued many financial companies whose operations were at the heart of the global financial crisis.

However, establishing effective group processes is not easy and requires continuous investment on the part of the company [43]. Indeed, effective group processes within companies include an integrated approach to strategic and financial planning, goal setting, compensation, and oversight (follow-up) [45]. Effective processes distinguish companies with a strong corporate culture from those with a weak culture, or in other words, higher financial management from lower financial management.

IV. CONCLUSION

To conclude, this brief review introduces a behavioral dimension of finance, in comparison with the main topics of traditional corporate finance.

Firstly, this article describes specific psychological phenomena that affect normal people judgments and choices on decision-making tasks involving risk. These phenomena fall into two groups: heuristics and biases, and framing effects; which prevent managers from making optimal use of traditional corporate financial tools, leading them to make bad decisions that destroy value.

Secondly, this article identifies the key behavioral concepts relevant to major corporate financial issues, such as: company valuation methods, capital structure, dividend policy, agency conflicts and corporate governance, mergers and acquisitions, and group financial management. These corporate finance topics are significantly affected by heuristics and framing effects in behavioral approach.

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