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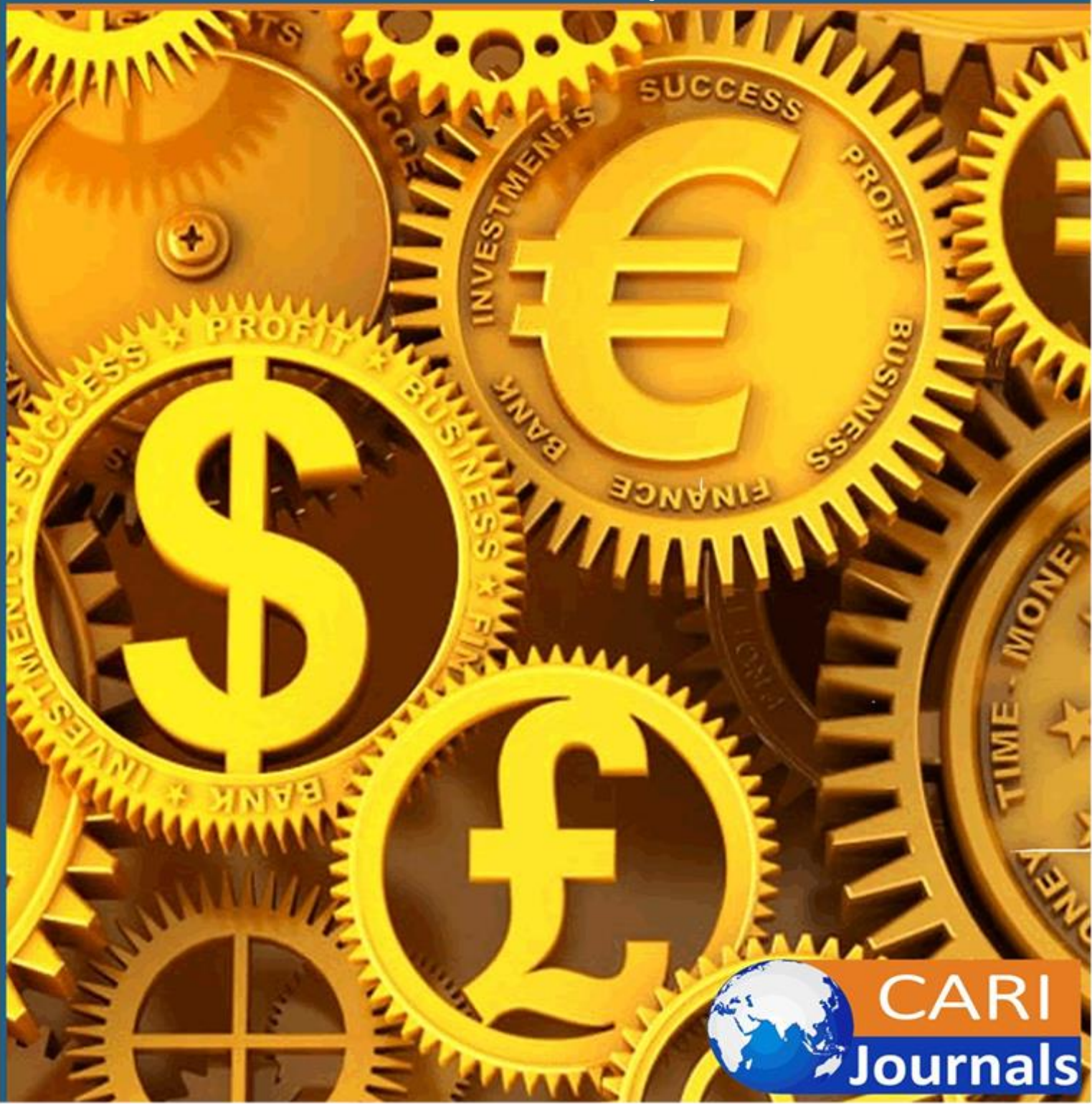

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Is it Irrational to Assume Rationality in Business?

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Abstract

Purpose: Academic research continuously introduces new theories, methodologies, etc. to improve upon prior studies. Researchers commonly base their theories on the assumption that managers and stakeholders have calculated motives and make well-educated decisions. However, they ignore the fact that certain corporate decisions are completely random with no logical explanations. Researchers still are not comfortable with this idea and always try to justify business decisions by advancing new sophisticated theories while in fact, many executives and stakeholders are not that sophisticated. This paper discusses such instances of irrationality.

Methodology: This paper discusses several instances of irrational business decisions in various aspects of finance including capital budgeting, capital structure, stock buybacks, executive compensation, overinvestment, and stock market irregularities. By examining a historical set of corporate events, it is shown that various forms of irrationality, when abundant, may cause empirical studies to refute theories.

Findings: Theories cannot always be justified by empirical work not necessarily because of flaws in these theories but possibly because of irrational behavior of ill-informed executives and stakeholders. That is, if the assumption of rationality commonly imbedded in academic studies does not hold, then it may be the culprit, at least in part, behind the discrepancy between theory and empirical findings.

Unique Contribution to Theory, Practice and Policy: This paper postulates that the discrepancy between theory and empirical findings may, in part, be caused by the common assumption of rationality that may not hold true. By discussing numerous instances of irrational behavior in various aspects of business, this paper attempts to show that irrationality is not uncommon and should be considered in the design of academic research.

Key words: *Irrationality, Overinvestment, Capital Structure, Stock Buyback*

1. INTRODUCTION

Researchers rarely agree on any given economic/financial topic of interest and challenge findings from prior studies, citing flaws in methodologies, use of different datasets, and testing techniques, etc. See for instance, Chen and Obizhaeva (2022) for an excellent review of literature on stock buybacks, Sureka et.al. (2022) on capital budgeting, Kruk (2021) on capital structure, Edmans, et. al. (2017) on executive compensation. Most of the debate remains unsettled. All these papers, however, have one assumption in common: all stakeholders are rational. Can this assumption of rationality be the culprit behind the discrepancy between theory and empirical findings? The objective of this paper is to illustrate that corporate executives and other stakeholders may not always make the rational decisions expected by researchers. As such, in conducting research, it may be irrational, at times, to assume that all business decisions are rational. In other words, it is not always expected that empirical results lend support to theories based on the assumption of stakeholders' rationality. Unfortunately, researchers often try to justify business decisions when in fact, they may be pure artifacts of irrational behavior. Often, researchers tend to stop short of labeling them as such. This paper examines a historical set of corporate events, and shows that several instances of irrationality, when abundant, may cause empirical studies to refute theories. Please note that some of these counterintuitive business decisions may not be caused by irrationality, but at times may be due to managers' outright deceit of stakeholders.

2. CAPITAL BUDGETING ISSUES

This paper does not attempt to highlight all the mishaps by corporate executives' overtime, rather, the main objective is to raise awareness among academicians that theories cannot always be justified by empirical work not because of flaws in the design of these theories but because of possible imperfections in the execution of business endeavors by ill-informed executives. For instance, the time value of money has been greatly emphasized by academics and is an important concept considered by corporate executives in capital budgeting decisions. As such, the NPV and the IRR techniques, both of which are based on the time value of money are widely employed in the decision-making process. A less sophisticated technique, the payback period method, highlights the importance of liquidity especially in small family-owned businesses to ensure their survival. Given the nature of the investments made by such businesses that tend to be short term, it is considered acceptable to ignore the time value of money for a year or two. This technique, while less accurate than the NPV and IRR is reasonably adequate as it is simple to comprehend and implement by smaller businesses. At the same time, it should not be used by mid-size to large corporations who mainly invest in long term projects where the time value of money becomes very important. Ross Westerfield and Jordan (2016) document that 30% of corporate executives use the payback period method. This phenomenon may not be due to the lack of understanding of the flaws of this technique as most corporate executives possess business degrees. When surveyed, they argue that it is a simpler technique to use and that it emphasizes liquidity although they understand the dangers of ignoring the time value of money especially in an inflationary time. So, while academics design theories around the assumption that corporate executives make rational decisions, it would be hard to tweak such theories to account for such irrationality. This may, in part, explain why empirical work does not always lend support to theory.

3. STOCK BUYBACKS WHEN STOCK IS OVERPRICED!

In the latest earnings call, on August 23, 2023, the CEO of the chipmaker NVIDIA has announced a $200 B stock buyback after the stock price has gone up more than 340% since the low on October 14, 2022 and after reaching its all-time high[1]. The company was valued at $250 B in November 2022 right before the AI hype started and went up to more than $1T by August 2023, a 3X increase in less than a year. It seems the CEO did not think his company was undervalued at $250 B but thinks it is undervalued when it increased to $1T. The literature highlights two major determinants of stock buybacks mainly timing and lack of profitable investment opportunities. Companies tend to issue more stock when their company is overpriced and buyback when it is underpriced. Even if NVIDIA CEO thinks his company is underpriced at $1T, he should have implemented a stock buyback when it was valued at 75% lower less than a year earlier. This announcement obviously left investors and analysts scratching their heads for answers.

Lee, Mikkelson, and Partch (1992) argue that managers tend to hold on and even add to their investment positions of the firm prior to the buyback announcement. It is noteworthy, however, that two weeks after the buyback announcement, the NVIDIA CEO unloaded $110M worth of NVIDIA stock over a ten-day period at prices ranging between $497.82 and $443.92. Is it a coincidence that the CEO is announcing a stock buyback when he is unloading his investment in the company? So, perhaps, the stock buyback is to facilitate the unloading of the stock with little effect on the stock price as it is absorbed by the stock buyback. Future research may investigate this possible hypothesis that stock buybacks take place when management thinks stock is overpriced in lieu of the common notion of when the stock is underpriced.

The second major determinant of stock buybacks is when a company lacks alternative investment opportunities. Obviously, this is not the case at the onset of the AI hype when the demand for AI chips is significantly rising to a point that is unprecedented in the history of the company. In fact, many analysts see a limit to the future outlook of NVIDIA due to the fact that it has a limited capacity and cannot satisfy the demand without a major expansion not only of its own operations but the operations of its numerous suppliers as well. Thus, the ample investment opportunities it currently has do not justify a stock buyback. This is another example of irrational decision by a company of the size and caliber of NVIDIA that is not in line with theoretical work.

4. CAPITAL STRUCTURE (RANDOM VERSUS OPTIMAL LEVELS)

Theoretically, there should be an optimum level of debt that lowers the cost of capital and maximize valuations. Are firms using it? No, according to Welch (2004) capital structure is random and mainly affected by stock returns and that securities issuing is still a “mystery.” There is significant heterogeneity in capital structure dynamics among similar firms. That is, if firms follow a certain optimum, then most firms within a class should have similar debt ratios. This is not the case. Why? Again, the literature has extensively explored possible determinants of capital structure and securities issuing. None of these studies gave a full explanation of the capital structure dynamics and the motives behind securities issuing. As with other topics, the debate will continue if researchers fail to recognize and admit that sometimes decisions are made at random.

[1] For a full earnings call transcript, please refer to the Motley Full website at the following link: https://www.fool.com/earnings/call-transcripts/2023/08/23/nvidia-nvda-q2-2024-earnings-call-transcript/

Academic researchers, however, may be too uncomfortable making statements such as "this study cannot find evidence explaining this corporate/market behavior," as they are always under pressure to explain a particular phenomenon otherwise, they would face rejections by academic journals for "little or no contribution" to the literature.

5. EXECUTIVE COMPENSATION

It is a common practice for firms' board of directors to link executive compensation to company performance. Thus, companies whose stock prices rise should see higher executive pay/bonuses (Schmidt (2021). It is not uncommon, however, to see executive compensation on the rise despite poor performance. There were numerous instances were CEO pay significantly increased at times when stock prices plunged 50% or more. Francis and Fuhrmans (2019) state that "The best performers got big pay and big raises last year, but the laggards didn't do much worse. Complex arrangements to tie compensation to company results keep coming up short." This is obviously counterintuitive. A few researchers and market analysts may argue that despite the temporary poor stock market performance, executives may have done a great job restructuring the company and setting it up for future growth through innovative business decisions that may be costly in the short run. In addition, it is argued by many that CEOs have no direct control over the market performance of the company. While such explanations are plausible, they are not supported by data as the poor stock market performance of such companies are likely to continue in the long run with the business decisions that have been made showing no significant impact on the firm's performance. For instance, CS Disco, Inc. dropped 89% in value over the past 5 years and 42% over the last year, yet the CEO received $110 M compensation when compared to say, Apple CEO who earned less than $100 M in 2022 with Apple stock rising 16% in the same time period and 219% over the last five years (figures are calculated as of Sept 22, 2023). So, it is obvious that executive compensation was not adequately determined by the board of directors. Such instances where executives are rewarded for poor performance suggest two possibilities. Either the members of the board were irrational in their decisions, or perhaps, "political" connections played a role in the determination of executive compensation. While the latter possibility has been extensively studied by the political connections' literature, the irrationality factor has not been considered.

6. OVERINVESTMENT (IN NEGATIVE NPV PROJECTS) AND OTHER TACTICS

An exception, perhaps, lies in the literature pertaining to the performance of companies post-IPO. Numerous papers have argued that SEO firms experience poor operating performance over the first five years post equity issue [see for instance, Hansen and Crutchley 1990, Loughran and Ritter 1997]. Similarly, other studies have documented poor stock returns during the same period for SEO firms [e.g., Spiess and Affleck-Graves 1995, Loughran and Ritter 1995, 2000, and Jegadeesh 2000]. A range of explanations for the poor performance have been established such as earnings management prior to SEO and a correction thereafter (Teoh, Welch, and Wong 1998), overestimated future earnings by the market for small firms (Denis, and Sarin 2001), and overinvestment [Fu 2010]. Overinvestment emerges from the fact that abundant cash flow, raised via stock offerings, increases the likelihood of being mismanaged. Corporate managers may benefit from the increased size of the firm (as a result of the new investments) in the form of prestige and higher pay. Numerous studies point to the overinvestment issue as a main culprit for the poor performance 5 years post the IPO date. While overinvestment can be considered an

irrational business decision, it seems it is done too often that it cannot be ignored as an outlier. This marks the few incidents when the literature points out irrationality without labeling it so. In fact, a few studies present it as rational decision that benefits shareholders at the expense of debtholders when the firm is under financial distress and takes on riskier projects. While such projects are risky, there may be no downside risk for shareholders who already have nothing to lose but benefit from the upside risk in case the project is profitable. Such a project is mainly financed by debtholders who have a claim on almost all the assets of the firm. So even in such situations where overinvestment may benefit shareholders, it is an outright morally corrupt business decision that have no regard to a major stakeholder (creditors) and should be reported as such. Unfortunately, the literature, overall, does not present it as an irrational business decision and even offers explanations for such an immoral act. Similar tactics were made by Marriot corporation in the 1980s to split the company into a services unit, already lucrative line of business, and a real estate unit, at a time when the real estate market was crashing. After such a split, each shareholder prior to the split would be offered a share of stock in each of the two new companies. The major problem here is that the lucrative services unit is to be associated with little debt. Whereas, the already financially distressed unit, comes with all the debt. This leaves the debtholders with increased risk as they became creditors of a distressed firm although they initially lent money to a well-established business that is diversified into two lines of business, the hotel management, and the real estate industry.

7. STOCK MARKET IRREGULARITIES

The stock market has numerous ill-informed retail noise traders that counteract the well-informed professional traders leading to stock price trends that cannot be justified by economic reasoning. While it is hard enough to explain all corporate executive's behavior, when we transition to markets where any one can take part, including the ill-informed retail trader, it would be a lot more difficult for any empirical work to validate market related theories such as the efficient market hypothesis. A well-known example pertains to the merger of two oil companies, Royal Dutch Petroleum and Shell Transport were each would receive 60% and 40% of all subsequent cash flow, respectively, with both firms continue to be publicly traded. Mathematically, the value of Royal Dutch Petroleum should be 1.5 times the value of Shell Transport after this merger. However, for the most part, the two firms significantly deviated from this ratio with the deviations reaching about 40% on both sides (see Ross, Westerfield, and Jordan 2016). The Efficient Market Hypothesis (EMH) suggests that arbitrageurs would step in and buy the underpriced and sell the overpriced assets ultimately bringing the two assets in equilibrium at which point arbitrage opportunities should seize to exist. Such examples refute the EMH and lead to never ending debate regarding this important concept to investors. Similar deviations are documented for Unilever N.V. and Unilever PLC (see Froot and Dabora 1999) and 3Com and Palm, Inc. (see Lamont and Thaler 2003). Other examples that refute the EMH and cannot be explained by researchers is the rise of meme stocks in recent history such as that of Gamestop. The reasoning behind the sudden spike in Gamestop stock price is a call by a lead investor in reddit group, a discussion platform widely followed by the generation Z investors, to "punish" short sellers. As a result, the increase in the demand for the stock, despite no news, resulted in a sudden spike in the stock price to a level deemed unsustainable by short sellers that rushed to cover their short positions. This act has further exacerbated the rise in the stock price from $10.72 on January

21, 2021, to a high of $120.55 in just five stock trading days. To the best of my knowledge, there is no research paper that designed a theoretical model of stock price behavior that considers such a possibility. This is an example of why academic debate will continue regarding the EMH as researchers, to make their work possible, always fall back on the assumption that most investors are rational. Even in the absence of rationality among retail investors, the well informed rational professional traders should step in and "correct" stock prices through the forces of arbitrage trading. In this case, however, even the professional traders don't have the ability to enforce the hypothesized power of arbitrage.

8. PRESSURE TO GET PUBLISHED

Numerous studies get unpublished each year because the "results are not good, and most variables are insignificant" so there is "no story to tell." Does this research attitude lead to bias in academic literature? Does this lead to more datamining to come up with a story to tell? Is the literature swaying research in only one direction? Perhaps many papers with no story to tell should also be published as they may correctly unmask reality. Eliminating "outliers" partially caused by irrational behavior from datasets, could distort empirical findings. Conceivably, the pressure to get published is guiding academic research in only one direction that ultimately bias the finance literature leading to further debate in an endless cycle.

9. CONCLUSION

Academic research continuously introduces new theories, methodologies, techniques, etc. to improve upon prior studies in a never-ending cycle. These studies, however, have one assumption in common: all stakeholders are rational. Can this assumption of rationality be the culprit behind the discrepancy between theory and empirical findings? This paper addresses this issue and illustrates instances where certain stakeholder decisions may either be irrational or completely random with no clear and logical explanations. Researchers often develop new sophisticated theories to explain corporate and/or market behavior while in fact, many corporate executives and market participants are not that sophisticated. When such irrational behavior is abundant, it can lead to empirical work refuting theories.

10. RECOMMENDATIONS

Future research should take into consideration the possibility of irrational behavior by stakeholders. When rationality-based models lead to counterintuitive empirical results, researchers often focus on improving their statistical models overcoming the possibility of irrationality. Take for instance, the price elasticity of demand that postulates that as prices rise, demand falls. Such a model does not apply to designer bags and luxury watches for example. When producers give consumers the illusion that these commodities are experiencing a shortage of supply, although on display at stores, they can raise prices and attract more consumer demand. Consumers in this instance exhibit irrational behavior as they are willing to purchase extremely overpriced products of relatively low intrinsic value (low production cost). Therefore, imbedding the possibility of irrational behavior by stakeholders, researchers may be able to close the gap between theoretical models and empirical results.

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