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How to Make Better Decisions? Lessons Learned from Behavioral Corporate Finance

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Abstract

This article reviews the literature in the field of Behavioral Corporate Finance. For reasons of simplicity, we distinguish between two approaches. The first approach focuses on the analysis of irrational behavior of managers in the context of *efficient* financial markets. Many empirical studies discover systematic irrational managerial behavior. The second approach regards rational manager decisions in the context of *inefficient* markets. The analysis focuses on situations where investors are systematically irrational taking rational and well-informed managers as given. Interestingly, Behavioral Corporate Finance is able to explain many empirical observations that cannot be explained by traditional Corporate Finance. In reality, both managers and investors act to some extent irrationally. Therefore, we make recommendations to both groups in order to improve their decision making. In contrast to other papers, we give specific recommendations for *both* managers *and* investors. With the help of these recommendations, managers and investors are able to improve decision-making to their mutual advantage.

Keywords: Behavioral Finance, Corporate Finance, irrationality, decision-making, manager-investor-relationship, psychological biases, inefficient markets

1. Introduction

Corporate Finance describes the interaction between managers and investors and its impacts on firm value. Traditional theory supposes that both groups act rationally. If this was true, managers could assume efficient financial markets. This means that stocks and bonds would be fairly priced in every single moment. Investors, on the other hand, could assume that managers acted self-serving. Therefore, investors would have to offer incentives bringing the interests of managers in line with their own interests. In reality, however, rational behavior cannot be assumed for either managers or investors. Instead, Behavioral Corporate Finance shows that several psychological biases influence decision making of both groups. In this paper, we discuss studies in this academic field. We distinguish between two approaches.

The first approach focuses on the analysis of irrational behavior of managers in the context of efficient financial markets. Many empirical studies discover irrational managerial behavior that is systematic. For example, it is shown that managers are overconfident and excessively optimistic (Ben-David, Graham & Harvey, 2010). Other psychological biases include anchoring, mental accounting and bounded rationality (Baker, Ruback & Wurgler, 2004; Gervais, 2010).

Table 1. Definition of biases (see also Shefrin, 2007)

	Definition
Overconfidence	Individuals believe that they are better than they really are.
Excessive optimism	The frequency of favorable outcomes is overestimated.
Anchoring	People anchor on an unimportant number and adjust insufficiently.
Mental accounting	Deciding based on different mental accounts.
Bounded rationality	Decisions are not rational because individuals are limited in their cognitive abilities and have incomplete information.

Table 1 shows the definitions of those biases. An assumption of the irrational manager approach is that managers are able to decide on their own and are not entirely controlled by Corporate Governance mechanisms. With regard to corporate practices, this assumption seems obvious. Empirical studies also come to this conclusion: Kaplan, Klebanov and Sorensen (2012) for example show that specific character traits of managers affect the financial development of firms. Bertrand and Schoar (2003) find out that investment decisions are influenced by the previous professional environment of the managers. Therefore, the assumption that managerial experience and character affect corporate decisions can be regarded as realistic.

The second approach focuses on situations where investors are systematically irrational taking rational and well-informed managers as given. This approach assumes managers to be able to distinguish between price and intrinsic value of a stock. Graham (1973) remarks that price is what investors pay, intrinsic value is what they get. In order for irrational investors to influence prices, biases must be systematic. If, in addition, arbitrage is limited, differences between price and intrinsic value can persist. The irrational investor approach assumes that managers possess an informational advantage over investors. This assumption seems to be realistic for different reasons: For example, managers are able to engage in earnings management and influence investors by means of investor-relations policy. Seyhun (1992) confirms that managers are well-informed: He shows that they outperform the market with legal insider trading (Baker & Wurgler, 2012). Muelbroek (1992) studies illegal insider trading and also finds that managers earn higher returns than the market.

It must be assumed that in reality, both parties do not decide completely rationally. Thus, elements of both approaches work together. In contrast to other papers, we give specific recommendations for both managers and investors. With the help of those recommendations, managers and investors are able to improve decision-making to their mutual advantage.

2. Irrational Managers and Efficient Markets

Considering managerial decisions to the disadvantage of shareholders, the literature distinguishes between intentional and unintentional value reducing decisions. This distinction is very important because the two cases demand different remedies. Intentional value reducing decisions, where managers try to outsmart shareholders, lead to agency conflicts which can be solved by correcting incentives. Here, interests of managers should be brought in line with interests of shareholders. Unintentional value reducing decisions are not in the interest of shareholders either. However, those decisions do not occur because of different interests between shareholders and managers. They are rather the consequences of managers' mistakes (Shefrin, 2007). These mistakes occur due to psychological reasons and should be avoided through the implementation of management training and education (Fairchild, 2007).

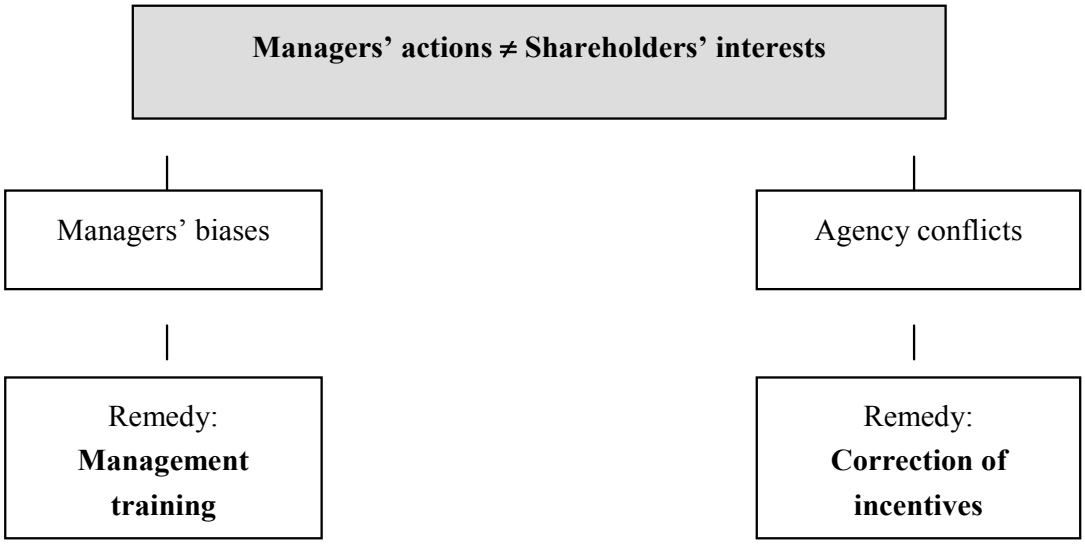

Figure 1. Managers' biases and agency conflicts

2.1 Financing Decisions

Loughran and Ritter (2002) explain IPO-Underpricing with mental accounting and anchoring. They assume that managers who issue shares evaluate the success of those newly issued shares according to two criteria. The first criterion is the gain that results from the difference between the closing price of the first trading day and the

average price of the price range, with the average price of the price range typically acting as anchor. The second criterion, which is offset against the first, is the actual loss resulting from Underpricing. If the described gain more than compensates the Underpricing-loss, the manager typically considers the IPO a success. The theory by Loughran and Ritter (2002) can explain the empirical finding that Underpricing is more pronounced if the offering price is above the price range. In this case, managers tolerate a larger Underpricing-loss (Baker, Ruback & Wurgler, 2004).

With the aid of a survey, Ben-David, Graham and Harvey (2010) show that managers are overconfident and excessively optimistic. Heaton (2002) demonstrates that there is a relationship between excessive optimism and the pecking order theory that influences the capital structure. According to Heaton (2002), excessive optimism leads managers to assume that their own companies are undervalued. Graham (1999) also finds with the help of a questionnaire that the majority of managers are convinced that their companies are undervalued although the survey took place during the Internet Boom at the end of the last century. He attributes this finding to overconfidence. It explains the reluctance to issue new shares and the preference for internal financing. One consequence is that investments are avoided or financed with debt if operating cash flow is low. If operating cash flow is high, however, firms finance their investments internally. The reluctance of overconfident CEOs to issue shares helps understand the empirical evidence that managerial overconfidence leads to higher debt levels (Fairchild, 2007). However, the relation between overconfidence and firm value is ambiguous because overconfidence not only leads to a sub-optimal capital structure but also to higher managerial effort (Fairchild, 2007).

2.2 Investment Decisions

Roll (1986) finds out that overconfidence leads to fostering takeovers. Malmendier and Tate (2003) confirm this assumption: Overconfidence, measured by the frequency executives appear in the public, is positively related to the number of takeovers. Porter and Singh (2010) discover that managers overestimate synergies and underestimate costs associated with acquisitions. Therefore, buying offers are often too high and takeovers thusly are value destroying (Jensen & Ruback, 1983). This finding can explain the fact that acquisition announcements lead to decreasing stock prices initially as well as in the long run (Andrade, Mitchell & Stafford, 2001). The stock market thusly reacts correctly to a decision that is typically wrong, at least on average. But not only takeovers are affected by overconfidence. Landier and Thesmar (2009) show in a survey that initially after founding, managers of young firms often assume that the future development of the firm will be positive. Only 6 percent of the surveyed managers expect difficulties. Three years later, the managers evaluate the situation more realistically: Now, already 17 percent of survey participants expect future difficulties.

Cost-estimations of large-scale projects show that managers are excessively optimistic. In retrospect costs are usually higher than initially expected. Revenues, in contrast, are typically lower than originally expected. Both effects lead to the acceptance of unfavorable projects due to excessive optimism. Statman and Tyebjee (1985) demonstrate this for the example of armament projects and pharmaceuticals. Motivated by Statman's and Tyebjees' (1985) research, Pruitt and Gitman (1987) survey executives who confirm that forecasts of large projects have been too optimistic in retrospect. Moreover, they show that capital budgeting is particularly biased for managers with a long work experience (see also Fairchild, 2007).

Malmendier and Tate (2005) compare the stock market development of firms run by awarded managers with a control group and discover underperformance. Moreover, they show that those companies' incomes develop worse than incomes of control group companies. Malmendier and Tate (2005) reason that awarded managers are typically concerned with tasks (writing books, amongst others) that detract them from more important duties. Another interpretation of the result is that winning awards increases overconfidence.

Bounded rationality decision making does not incorporate the entire complexity of the problem (Simon, 1955). Instead, decisions are made with rules of thumb and therefore are often wrong-headed. Gitman and Forrester (1977), for example, show in a survey that Internal Rate of Return (IRR) is typically preferred over Net Present Value (NPV) for evaluating investments, although NPV is more exact. In another survey, Graham and Harvey (2001) find out that more than half of all managers use a simple amortization method that does not take into account capital cost and cash that comes in after the amortization period. However, it is argued that the amortization method is useful for firms that are severely capital constrained (Shefrin, 2007).

Welch (2004) discovers that the capital structure in reality is not adjusted to stock price fluctuations as suggested by rational models (see also Subrahmanyam, 2007). Graham and Harvey (2001) confirm this finding. They show with the help of a survey that book values – and not market values – are used for capital structure targets in reality. This finding is remarkable given the fact that market values can critically deviate from book values,

especially in case of equity capital (see also Baker, Ruback & Wurgler, 2004). A further result of the survey is that most managers use a single discount rate for all projects within the firm. In theory the discount rate should change depending on the risk of the prevailing project, but according to the questionnaire fewer than 10 percent use different discount rates for different projects. Admittedly, however, managers of larger firms are more likely to employ discount rates that match risk characteristics (see also Shefrin, 2007). A single discount rate for the whole firm leads to favoring of high-risk projects and discrimination of low-risk projects. Thus, the mentioned simplification results in suboptimal investment choices.

Prospect theory assumes that individuals are risk averse in the positive and risk seeking in the negative domain. Faced with a choice between a gamble and a sure loss, individuals tend to opt for the gamble (Kahneman & Tversky, 1979). Combining mental accounting with prospect theory preferences, managers hold on to less successful projects even if those projects should be finished under rational criteria (Fairchild, 2007). Hoping to break even, managers typically throw good money after bad. This phenomenon explains why the stock market reaction to finishing announcements of loss-making projects is on average positive (Statman & Sepe, 1989; Baker, Ruback & Wurgler, 2004). In order to give an overview, we summarize the studies about irrational managerial behavior in appendix A.

3. Irrational Investors and Rational Managers

In the literature, rational managers keep a balance between three goals, namely market timing, catering and increasing intrinsic value (see Figure 2). Market timing relates to decisions that aim at exploiting temporary mispricing, for example by issuing overvalued or repurchasing undervalued shares. Catering refers to decisions that aim at boosting stock prices above the level of intrinsic value. Increasing intrinsic value is self-explanatory.

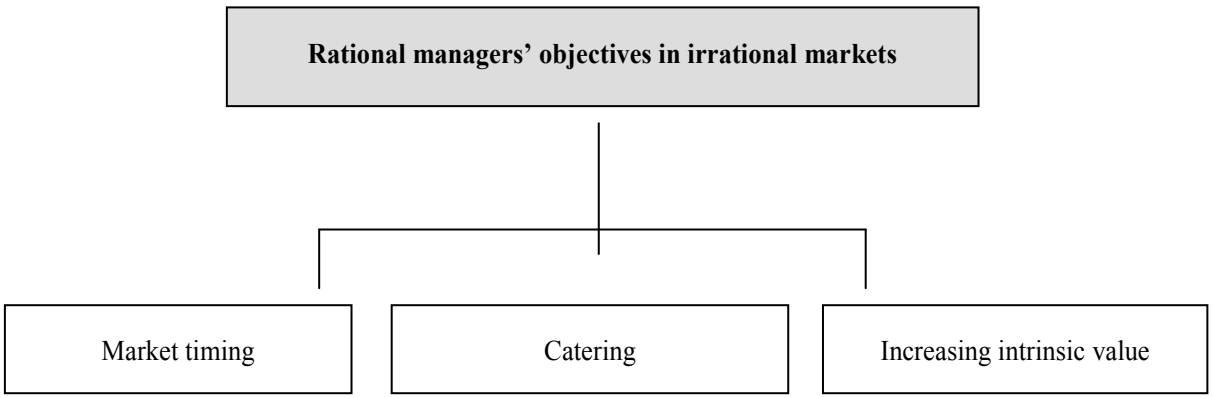

Figure 2. Rational managers' objectives

3.1 Financing Decisions

The fact that new issues underperform in the long run spurs speculations that managers tend to issue stocks, particularly if they are overvalued. Loughran and Ritter (1997) and Ikenberry, Lakonishok and Vermaelen (2000), for example, show that IPOs as well as SEOs have lower stock returns than the aggregate market. Issuing overvalued stocks lowers capital cost at the expense of new investors. It can be assumed that wealth is knowingly transferred from new to existing shareholders (Baker & Wurgler, 2012). This theory is confirmed by the findings of Burch, Christie and Nanda (2004). They consider the return difference between stocks issued to existing investors with subscription rights and stocks issued to new investors for the US-market from 1933 to 1949 and show that only stocks issued to new investors underperform in comparison to the market.

Another remarkable result is that stocks are issued predominantly when the subsequent performance of the aggregate market is below-average. Baker and Wurgler (2000), for example, show that the US-market underperforms compared to the historical performance when the number of new issues is in the top-quarter. The investment horizon considered by Baker and Wurgler (2000) is one year. Henderson, Jegadeesh and Weissbach (2006) demonstrate for other countries that firms tend to issue stocks when the development of the aggregate market is below-average in the subsequent year. Loughran, Ritter and Rydqvist (1994) show that the number of IPOs is particularly high in times when valuation ratios indicate that the market is overvalued. Pagano, Panetta and Zingales (1998) find out that firms arrange SEOs when the Price Book Ratio (PB) of their industry is above-average.

In addition, Jung, Kim and Stulz (1996) show that firms tend to issue stocks when the firm has a high PB in comparison to the historical average PB of the firm. These findings indicate that managers possess an information advantage over investors and issue new stocks if they are overvalued. This reasoning is in line with Jenter (2005). He shows that shortly before and after SEOs an above average number of managers engage in insider selling. In the survey of Graham and Harvey (2001), about 66 percent of managers state that overvaluation is an important or very important criterion for the decision to issue shares (Baker & Wurgler, 2012). Huh and Subrahmanyam (2005) demonstrate for SEOs that mainly private investors buy issued shares. The authors attribute this finding to the fact that those investors are particularly attracted by the stock increases that typically happen before the issue. According to the authors, those private investors assume that stock prices rise further, even after the issue. This assumption, however, turns out to be wrong in most cases (Loughran & Ritter, 1997).

In summary, investors should be skeptical towards new issues for at least two reasons: First, newly issued shares underperform compared to the aggregate market. Secondly, newly issued shares are typically issued when the aggregate market or the industry is at a high or at an interim high. Ikenberry, Lakonishok and Vermaelen (1995) show that stocks repurchased by firms earn better returns than the market. Just as the underperformance of new issued stocks can be explained by overvaluation, the outperformance of repurchased stocks can be explained by undervaluation. Asked by Brav, Graham, Harvey and Michaely (2005), managers say that they consider undervaluation indeed as an important criterion for repurchases.

Hong, Wang and Yu (2008) find out that firms repurchase their own shares especially after stock market decreases. Grinstein and Michaely (2005) demonstrate that in comparison to individual investors, institutional investors seem to appreciate repurchases. This finding may explain that stocks show a positive initial reaction of 3.5 percent after the repurchase announcement (Shefrin, 2007). Dichev (2007) asks how equity capital cost decrease due to the timing of new issues and buybacks. For 19 different markets, the mean reduction of equity capital cost is 1.5 percent per year. Thus, if firms did not time their new issues and repurchases they would have to bear 1.5 percent higher equity capital cost.

Marsh (1982) asks whether firms not only time equity but also debt issues. He shows that the interest rate level influences the decision whether to issue stocks or bonds. Guedes and Opler (1996) demonstrate that for newly issued bonds there is a negative correlation between duration and the interest differential between long- and short term interest rates. These interesting results are in line with the survey of Graham and Harvey (2001) which shows that the majority of managers consider the interest rate level as the most important criterion whether or not to issue new bonds (Graham & Harvey, 2001). Moreover, managers declare that the decision whether to choose long or short-term debt is influenced by the yield curve.

Spiess and Affleck-Graves (1999) study *stock performance* of firms that have issued bonds or convertible bonds from 1975 to 1989. Considering an investment horizon of five years, they find that stocks of both groups underperform in comparison to a control group. In this study the control group was chosen based on size and PB. Stocks of firms that have issued convertible bonds perform even worse than stocks of firms that have issued ordinary bonds (Baker & Wurgler, 2012). However, stocks of firms that have issued ordinary bonds underperform as well. An explanation for this finding is that managers pretty up their companies when issuing bonds in order to appear creditworthy. Investors seem to be influenced and buy overvalued stocks that subsequently underperform.

Given that financial decisions of managers depend on market situations, it can be assumed that past valuation influences the capital structure of a firm. Baker and Wurgler (2002) find that there is a negative relationship between the average past PB of a firm and the relation between debt and equity (see also Barberis & Thaler, 2003). Baker and Wurgler (2002) explain their result with the fact that financing decisions of firms depend on under- and overvaluation of stocks. A contrarian opinion comes from Hovakimian (2006). He argues that average PB explains the relation between debt and equity because PB includes information about growth prospects of firms. According to Hovakimian (2006), those growth prospects in turn influence the target capital structure.

3.2 Investment Decisions

Shleifer and Vishny (2003) develop a theory for corporate takeovers. They suppose that firms undertake acquisitions if their own stocks are an attractive currency to finance the purchase (Subrahmanyam, 2007). Shleifer and Vishny (2003) reason that stock financed takeovers are advantageous for the buyer if stocks of the target firm are less overvalued than stocks of the buying firm. In this case, shareowners of the buyer benefit because overvaluation of their shares decreases due to the takeover. According to Shleifer and Vishny (2003), especially

overvalued firms gain if they pay with own shares. Undervalued firms, in contrast, should prefer to pay in cash. Therefore, the theory is able to explain the empirical fact that the subsequent stock performance of firms financing takeovers with stocks is worse than the subsequent stock performance of firms that pay in cash (Rau & Vermaelen, 1998).

Ang and Cheng (2006) study the correlation between valuation ratios and the number of takeovers. They find a positive link and in addition demonstrate that according to PB, buying firms are more overvalued than acquired firms. Baker, Foley and Wurgler (2009) show that cross border takeovers increase when the mean PB in the home country of buying firms rises. This finding also indicates that firms exploit overvaluation of own shares. Baker, Coval and Stein (2007) ask why overvalued companies undertake acquisitions and do not issue stocks. They conclude that the reason may be investor preferences: Investors take the path of least resistance and agree to takeovers. But those investors would not actively buy new stocks according to Baker, Coval and Stein (2007).

Considering takeovers, the choice between diversification and focus is of special interest. Rational theory cannot explain why there are periods with remarkably many diversification takeovers from time to time. These periods are called conglomerate waves (Ravenscraft & Scherer, 1987). One of those conglomerate waves started in the mid-1960s and culminated in 1968. Ravenscraft and Scherer (1987) focus on that period. They find out that investors who held conglomerates from 1965 to 1968 earned a return that was more than three times higher than the return of the aggregate market. But from 1968 to 1970, conglomerates underperformed by a large margin (Baker & Wurgler, 2012). Moreover, until 1968 stocks reacted initially positive when diversification takeovers where announced (Matsusaka, 1993). After 1968, however, there was no such positive effect (Morck, Shleifer and Vishny, 1990).

Accordingly, Klein (2001) shows that conglomerates traded at a premium until 1968 and thereafter at a discount (Baker & Wurgler, 2012; Klein, 2001). Conglomerate waves can be explained by an irrational investor preference for diversified firms. According to Baker and Wurgler (2012), managers react opportunistically and cater to the demands of investors by diversifying, even though they accept the risk of destroying long-term value by doing so. This reaction is quite rational since it boosts managers' compensation and often secures their job. If conglomerates get out of fashion later, opportunistic managers react and divest subsidiaries again.

The question is whether irrational investor behavior affects real investment: As already demonstrated, managers often time new issues. They offer shares when those are overvalued. In his model, Stein (1996) supposes firms that are not dependent on equity and managers that increase long-term value. He shows that those managers will not ultimately invest additional capital that comes from new issues because they know that investor optimism referring to additional projects is not justified. Therefore, overvaluation should not influence real investment behavior of firms (Barberis & Thaler, 2003). Equally, an undervaluation that leads to repurchases will not influence investment behavior if the assumptions of Stein's (1996) model hold.

One can assume, however, that in reality both model assumptions do not hold without restrictions: First, one has to assume that many firms, particularly heavily leveraged firms, are in need of equity. Secondly, it is not realistic to suppose that all managers only want to increase long-term firm value. It is possible, for example, that a real world manager is opportunistic. Accordingly, he or she will undertake a project liked by investors even if it does not create long-term value, because otherwise the manager would run the risk of losing his or her job. One reason is that a hostile takeover becomes more likely to happen if the stock decreases. But of course, the manager can also be laid off directly if shareholders are not satisfied with his or her performance.

Several studies test whether mispricing of stocks influences real investment behavior. Baker and Wurgler (2002) measure overvaluation of single stocks with PB: They show that firms with high PBs issue more than the average number of shares. But usually the funds are not used for additional real investments. Instead, firms boost cash reserves. Blanchard, Rhee and Summers (1993) study aggregate market mispricing for the US-market. Using Tobin's Q, they show that mispricing is only marginally related to real investment for the time span from 1920 to 1990. Gilchrist, Himmelberg and Huberman (2005) study stock market bubbles and come to a different conclusion than Baker and Wurgler (2002) or Blanchard, Rhee and Summers (1993): They show that mispricing not only influences finance- but also real investment behavior. Polk and Sapienza (2009) also demonstrate that real investment is affected. They find that real investment heavily depends on mispricing in particular for firms with short-term oriented shareholders (Baker & Wurgler, 2012). Polk and Sapienza (2009) measure investment horizon with the help of the average stock turnover of a company.

Baker, Stein and Wurgler (2003) suppose that the correlation between mispricing and real investment increases with the dependence on equity. They ask whether equity-dependent firms pass profitable investment opportunities if they have to finance the projects with undervalued stocks. Baker, Stein and Wurgler (2003)

judge the equity-dependence by the amount of liquid funds. As supposed, the study shows that particularly for equity-dependent firms, investment varies with mispricing. For less equity-dependent firms, investment varies less (Barberis & Thaler, 2003). In summary, we can notice that there are indications that irrational investor behavior influences corporate investment, at least partly. It cannot be said for sure, however, to which extent, investments are a rational response to overvaluation, or whether they are irrational in themselves. In order to answer this question, further research is necessary. Appendix B gives an overview of the studies about irrational behavior of investors and rational managerial responses.

4. Recommendations for Managers and Investors

The previous parts of this paper show that the assumption of rational behavior is not realistic. Instead, managers and investors make mistakes. Next to summing up currently predominant research, we give advice for managers and investors in order for them to foster mutual success. The mistakes mentioned in this paper are systematical. The question is how to prevent them. Debiasing is difficult because the psychology that forms the basis of those mistakes is very robust. Of course, individuals are able to learn about biases but learning takes very long. Therefore, debiasing needs time and effort. Moreover the complexity varies from situation to situation. If feedback comes in fast and is clear, it is easier to realize mistakes than if feedback comes in slow and is ambiguous. In many situations of the corporate world, the time span between the decision and the ultimate outcome is very long and it is difficult to link the outcome to the decision. Therefore, it is complicated enough to realize mistakes. Avoiding future mistakes is even more complicated. (Shefrin, 2007) Let's now ask how to improve decision making for both investors and managers concretely.

Investors can of course influence investment success by making good buying and selling decisions. This is obvious and a scientifically accepted fact. Beyond that, however, investment success is determined by the actions of managers. As demonstrated above, managers are able to create value for investors through good capital allocation- and financing decisions. But it is also crucial that investors are able to appreciate that; only if this is the case they can choose capable managers and provide effective incentives. If effective incentives are installed, value enhancing decisions are favorable for capable managers, too: A mutually beneficial situation emerges. In the selection of managers, investors should not only consider managerial actions but also the motives behind the actions. It may well make sense for long-term oriented investors if managers repurchase shares because of their undervaluation. But repurchases are also often implemented for wrong, that is not value oriented, reasons.

Managers frequently repurchase shares in order to increase demand for price stabilization reasons. If that is the reason, investors should be suspicious. This motive eventually does not tell anything about whether buybacks create or destroy value. Investors should moreover be skeptical towards management that in the past frequently engaged in takeovers that proved to be value destroying in retrospect. It is likely that overconfidence leads to value destroying transactions in the future, too. If capable managers encounter uninformed investors, managers can try to give investors an understanding of value oriented management. An annual report, for example, does not only have to be used to report about the last financial year but can also be an instrument to enlighten investors about good and value increasing business principles. *Berkshire Hathaway* provides a good example how loyal investors can learn from management in a relationship that is based on trust and honesty. Here, shareholders are not considered faceless figures in an ever shifting crowd. Instead they are treated as long-term partners. In this case, time and effort to familiarize investors with value increasing business principles pay off for the management. Investors learn, become better stewards and are able to better evaluate corporate decisions.

In many firms however, this does not work as well as in the mentioned example. Often, there is a danger that investors do not know what is in their own best interest. In this case it is possible that investors provide the wrong incentives for managers and it does not pay off for managers to make decisions that are in the interests of investors. Then, controlling managers is not beneficial to increasing long-term value. There are many companies, particularly smaller ones, which shy away from entering the capital market for exactly that reason: They do not want to make themselves dependent on short-term oriented and irrational investors. The situation is often not improved by the fact that investors do not control management directly but by means of a board.

Executives should confine themselves to value oriented management. This would render earnings management and other accounting manipulating actions unnecessary. However, informed investors are needed to provide incentives that ensure that not earnings manipulation but value increasing actions pay off for managers. Sometimes it is beneficial if managers are shareholders themselves and are not allowed to sell their shares for a while – managers would have to eat their own cooking. It is common but not advisable to link payment to the mere size of a company. Instead, it is better to link payment to *per share* value. Mutual trust is important for a

successful relationship between managers and shareholders. Managers should ensure not to raise expectations that they cannot fulfill. This is the best way for a mutually beneficial relationship (see *Berkshire Hathaway Annual Reports*).

Complicated questions for managers arise in the context of new and parting shareholders: Should managers issue overvalued shares to new investors in order to create value for existing shareholders? Managers could justify this step with their obligation towards existing shareholders. At the time of the capital increase, one could argue, they are not yet obligated towards new shareholders. But it is possible that these new shareholders ask themselves in retrospect whether they can trust management that has exploited its information advantage and sold them overvalued shares. In this case the relationship may be adversely affected from the very beginning.

5. Conclusion

Research in the field of Behavioral Corporate Finance shows that managers as well as investors act irrationally – at least partly. The recommendations in this paper aim at helping both groups to change decisions. The approach that explains not only investor but also management decisions by psychology is relatively new and accordingly, irrational managerial behavior has up-to-date not yet been included in behavioral models. A model that considers not only investor but also managerial choices and interdependencies would be a path-breaking progress compared to the present one-dimensional behavioral models.

As demonstrated in this paper, much of the past studies have focused on overconfidence, excessive optimism and bounded rationality. But Statman and Caldway (1987) show for example that executives exhibit many biases when they decide about corporate investments that are similar to those of investors (see also Fairchild, 2007). But more concrete results are needed. Therefore, further research is necessary.

References

Andrade, G., Mitchell, M. L., & Stafford, E. (2001). New evidence and perspective on mergers. *Journal of Economic Perspectives, 15*, 103-120. http://dx.doi.org/10.1257/jep.15.2.103

Ang, J. S., & Cheng, Y. (2006). Direct evidence on the market-driven acquisition theory. *Journal of Financial Research, 29*, 199-216. http://dx.doi.org/10.1111/j.1475-6803.2006.00174.x

Baker, M. P., & Wurgler, J. (2000). The equity share in new issues and aggregate stock returns. *Journal of Finance*, *55*, 2219-2257. http://dx.doi.org/10.1111/0022-1082.00285

Baker, M. P., & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance, 57*, 1-32. http://dx.doi.org/10.1111/1540-6261.00414

Baker, M. P., & Wurgler, J. (2012). Behavioral Corporate Finance: An Updated Survey. Forthcoming in: Constantinides, G., Harris, M., & Stulz, R. (Eds.), *Handbook of the Economics of Finance* (Volume 2).

Baker, M. P., Coval, J., & Stein, J. (2007). Corporate financing decisions when investors take the path of least resistance. *Journal of Financial Economics*, *84*, 266-298. http://dx.doi.org/10.1016/j.jfineco.2006.03.005

Baker, M. P., Foley, F., & Wurgler, J. (2009). Multinationals as arbitrageurs: The effect of stock market valuations on foreign direct investment. *Review of Financial Studies*, *22*, 337-369. http://dx.doi.org/10.1093/rfs/hhn027

Baker, M. P., Ruback, R. S., & Wurgler, J. (2004). Behavioral Corporate Finance: A Survey. In Espen Eckbo (Ed.), *Handbook of Corporate Finance: Empirical Corporate Finance* (pp. 145-185).

Baker, M. P., Stein, J., & Wurgler, J. (2003). When does the market matter? Stock prices and the investment of equity dependent firms. *Quarterly Journal of Economics*, *118*, 969-1006. http://dx.doi.org/10.1162/00335530360698478

Barberis, N., & Thaler, R. (2003). A survey of behavioral finance. In: Thaler, R. (Ed.), *Advances in Behavioral Finance*, *2*, 1-75.

Ben-David, I., Graham, J. R., & Harvey, C. R. (2010). Managerial miscalibration. *Working paper*. Available at SSRN: http://ssrn.com/abstract=1640552

Berkshire Hathaway Annual Reports and Owners Manual. availiable at: www.berkshirehathaway.com.

Bertrand, M., & Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, *118*, 1169-1208. http://dx.doi.org/10.1162/003355303322552775

Blanchard, O., Rhee, C., & Summers, L. (1993). The stock market, profit, and investment. *Quarterly Journal of Economics*, *108*, 115-36. http://dx.doi.org/10.2307/2118497

Brav, A., J., Graham, R., Harvey, C. R., & Michaely, R. (2005). Payout Policy in the 21st Century. *Journal of Financial Economics*, *77*, 483-528. http://dx.doi.org/10.1016/j.jfineco.2004.07.004

Burch, T., Christie, W., & Nanda, V. (2004). Do firms time equity offerings? Evidence from the 1930s and 1940s. *Financial Management*, *33*, 5-23.

Dichev, I. (2007). What are stock investors' actual historical returns? Evidence from dollar-weighted returns. *American Economic Review*, *97*, 386-401. http://dx.doi.org/10.1257/aer.97.1.386

Fairchild, R. (2007). Behavioral Corporate Finance: Existing Research and Future Direactions. *Working Paper*. Available at SSRN: http://ssrn.com/abstract=1011976

Gervais, S. (2010). Capital budgeting and other investment decisions. In Baker, H. & Nofsinger, J. (Eds.), *Behavioral Finance.*

Gilchrist, S., Himmelberg, C., & Huberman, G. (2005). Do stock price bubbles influence corporate investment? *Journal of Monetary Economics*, *52*, 805-827. http://dx.doi.org/10.1016/j.jmoneco.2005.03.003

Gitman, L. J., & Forrester, J. R. (1977). A survey of capital budgeting techniques used by major US firms. *Financial Management*, *6*, 66-71. http://dx.doi.org/10.2307/3665258

Graham, B. (1973). *The Intelligent Investor*. McGraw Hill.

Graham, J. R. (1999). Duke University CFO outlook survey 1999Q2. *Working Paper*. Available at: http://www.duke.edu/~jgraham/99q2/q299ind.htm

Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, *60*, 187-243. http://dx.doi.org/10.1016/S0304-405X(01)00044-7

Grinstein, Y., & Michaely, R. (2005). Institutional Holdings and Payout Policy. *Journal of Finance*, *60*, 1389-1426. http://dx.doi.org/10.1111/j.1540-6261.2005.00765.x

Guedes, J., & Opler, T. (1996). The determinants of the maturity of corporate debt issues. *Journal of Finance*, *51*, 1809-1833. http://dx.doi.org/10.1111/j.1540-6261.1996.tb05227.x

Heaton, J. B. (2002). Managerial optimism and corporate finance. *Financial Management*, *31*, 33-45. http://dx.doi.org/10.2307/3666221

Henderson, B. J., Jegadeesh, N., & Weissbach, M. S. (2006). World markets for raising new capital. *Journal of Financial Economics*, *82*, 63-101. http://dx.doi.org/10.1016/j.jfineco.2005.08.004

Hong, H., Wang, J., & Yu, J. (2008). Firms as buyers of last resort. *Journal of Financial Economics*, *88*, 119-145. http://dx.doi.org/10.1016/j.jfineco.2007.04.004

Hovakimian, S. (2006). Are observed capital structures determined by equity market timing? *Journal of Financial and Quantitative Analysis*, *36*, 1-24. http://dx.doi.org/10.2307/2676195

Huh, S. W., & Subrahmanyam, A. (2005). Order flow patterns around seasoned equity offerings and their implications for stock price movements. *International Review of Finance*, *5*, 75-111. http://dx.doi.org/10.1111/j.1468-2443.2006.00052.x

Ikenberry, D., Lakonishok, J., & Vermaelen, T. (1995). Market underreaction to open market share repurchases. *Journal of Financial Economics*, *39*, 181-208. http://dx.doi.org/10.1016/0304-405X(95)00826-Z

Ikenberry, D., Lakonishok, J., & Vermaelen, T. (2000). Share repurchases in Canada: Performance and strategic trading. *Journal of Finance*, *55*, 2373-2397. http://dx.doi.org/10.1111/0022-1082.00291

Jensen, M. C., & Ruback, R. S. (1983). The market for corporate control: The scientific evidence. *Journal of Financial Economics*, *11*, 5-50. http://dx.doi.org/10.1016/0304-405X(83)90004-1

Jenter, D. (2005). Market timing and managerial portfolio decisions. *Journal of Finance*, *60*, 1903-1949. http://dx.doi.org/10.1111/j.1540-6261.2005.00783.x

Jung, K., Kim, Y., & Stulz, R. (1996). Timing investment opportunities, managerial discretion, and the security issue decision. *Journal of Financial Economics*, *42*, 159-185. http://dx.doi.org/10.1016/0304-405X(96)00881-1

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*, 263-291. http://dx.doi.org/10.2307/1914185

Kaplan, S. N., Klebanov, M., & Sorenson, M. (2012). Which CEO Characteristics and abilities matter? *Journal of Finance*, *67*, 973-1007. http://dx.doi.org/10.1111/j.1540-6261.2012.01739.x

Klein, P. G. (2001). Where the acquisitive conglomerates inefficient? *RAND Journal of Economics*, *32*, 745-761. http://dx.doi.org/10.2307/2696391

Landier, A., & Thesmar, D. (2009). Financial contracting with optimistic entrepreneurs. *Review of Financial Studies*, *22*, 117-150. http://dx.doi.org/10.1093/rfs/hhn065

Loughran, T., & Ritter, J. (1997). The operating performance of firms conducting seasoned equity offerings. *Journal of Finance, 52*, 1823-1850. http://dx.doi.org/10.1111/j.1540-6261.1997.tb02743.x

Loughran, T., & Ritter, J. (2002). Why don't issuers get upset about leaving money on the table in IPOs? *Review of Financial Studies*, *15*, 413-443. http://dx.doi.org/10.1093/rfs/15.2.413

Loughran, T., Ritter, J., & Rydqvist, K. (1994). Initial public offerings: international insights. *Pacific Basin Journal*, *2*, 165-199. http://dx.doi.org/10.1016/0927-538X(94)90016-7

Malmendier, U., & Tate, G. (2003). Who Makes Acquisitions ? CEO Overconfidence and and the Market's Reaction. *Working Paper*. Available at SSRN: http://ssrn.com/abstract=470788

Malmendier, U., & Tate, G. (2005). Superstar CEOs. *Working Paper*. Available at SSRN: http://ssrn.com/abstract=709861

Marsh, P. (1982). The choice between equity and debt: An empirical study. *Journal of Finance*, *37*, 121-44. http://dx.doi.org/10.1111/j.1540-6261.1982.tb01099.x

Morck, R., Shleifer, A., & Vishny, R. (1990). Do managerial objectives drive bad acquisitions? *Journal of Finance, 45*, 31-48. http://dx.doi.org/10.1111/j.1540-6261.1990.tb05079.x

Muelbroek, L. (1992). An empirical analysis of illegal insider Trading. *Journal of Finance*, *47*, 1661-1699. http://dx.doi.org/10.1111/j.1540-6261.1992.tb04679.x

Pagano, M., Panetta, F., & Zingales, L. (1998). Why do companies go public? An empirical analysis. *Journal of Finance*, *53*, 27-64. http://dx.doi.org/10.1111/0022-1082.25448

Polk, C., & Sapienza, P. (2009). The stock market and corporate investment: A test of catering theory. *Review of Financial Studies*, 187-217.

Porter, J., & Singh, H. (2010). What factors drive takeovers in Australia? *International journal of business and economics*, *9*, 87-103.

Pruitt, S. W., & Gitman, L. J. (1987). Capital budgeting forecast biases: evidence from the Fortune 500. *Financial Management*, 46-51. http://dx.doi.org/10.2307/3665549

Rau, P. R., & Vermaelen, T. (1998). Glamour, value and the post-acquisition performance of acquiring firms. *Journal of Financial Economics*, *49*, 223-253. http://dx.doi.org/10.1016/S0304-405X(98)00023-3

Ravenscraft, D. J., & Scherer, F. M. (1987). *Mergers, Sell-Offs, and Economic Efficiency*. Washington, DC: Brookings Institution.

Roll, R. (1986). The hubris hypothesis of corporate takeovers. *Journal of Business*, *59*, 197-216. http://dx.doi.org/10.1086/296325

Seyhun, H. N. (1992). Why does aggregate insider trading predict future stock returns? *Quarterly Journal of Economics*, *107*, 1303-31. http://dx.doi.org/10.2307/2118390

Shefrin, H. (2007). *Behavioral Corporate Finance*. London: McGraw-Hill/Irwin.

Shleifer, A., & Vishny, R. (2003). Stock market driven acquisitions. *Journal of Financial Economics*, *70*, 295-312. http://dx.doi.org/10.1016/S0304-405X(03)00211-3

Simon, H. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, *69*, 99-118. http://dx.doi.org/10.2307/1884852

Spiess, K., & Affleck-Graves, J. (1999). The long-run performance of stock returns following debt offerings. *Journal of Financial Economics*, *54*, 45-73. http://dx.doi.org/10.1016/S0304-405X(99)00031-8

Statman, M., & Sepe, J. F. (1989). Project termination announcements and the market value of the firm. *Financial Management*, *14*, 74-81. http://dx.doi.org/10.2307/3665799

Statman, M., & Tyebjee, T. T. (1985). Optimistic capital budgeting forecasts: An experiment. *Financial Management*, *14*, 27-33. http://dx.doi.org/10.2307/3665056

Stein, J. (1996). Rational capital budgeting in an irrational world. *Journal of Business*, *69*, 429-55. http://dx.doi.org/10.1086/209699

Subrahmanyam, A. (2007). Behavioural Finance: A Review and Synthesis. *European Financial Management*, *14*(1), 12-29.

Welch, I. (2004). Capital structure and stock returns. *Journal of Political Economy*, *112*, 106-31. http://dx.doi.org/10.1086/379933

Appendix A. Overview Irrational Managers in Efficient Markets

Study	Findings	Explanation
Loughran & Ritter (2002)	Managers exhibit mental accounting and anchoring	Managers want IPOs to be a success
Ben-David et al. (2010)	Managers are prone to excessive optimism, overconfidence	Managers become exuberant due to success
Heaton (2002)	Managers perceive own stocks to be undervalued	Excessive optimism
Graham (1999)	Managers perceive own stocks to be undervalued	Overconfidence
Roll (1986)	Takeovers are value-destroying on average	Overconfidence
Malmendier & Tate (2003)	There is a positive link between the number of takeovers and overconfidence	Overconfidence fosters deal-making
Porter & Singh (2010)	Managers overestimate synergies and underestimate costs	Excessive optimism and overconfidence
Jensen & Ruback (1983)	Takeovers are value destroying on average	Overconfidence
Andrade et al. (2001)	After takeover announcements, there is typically an initial stock decrease	Overconfidence
Landier & Thesmar (2009)	Entrepreneurs‘ forecasts are too optimistic	Excessive optimism
Statman & Tyebjee (1985)	Estimated costs of large projects are too low	Excessive optimism
Malmendier & Tate (2005)	Stocks of firms with CEOs that have won awards underperform	Diverted attention and overconfidence
Gitman & Forrester (1977)	Managers prefer IZF over NPV	Bounded rationality
Graham & Harvey (2001)	Firms often use a simple amortization method instead of NPV	Bounded rationality
Welch (2004)	Capital structure is not adjusted to price fluctuations	Bounded rationality
Graham & Harvey (2001)	Managers use book values instead of market values for capital structure targets	Bounded rationality
Graham & Harvey (2001)	Managers use the same discount rate for all projects	Bounded rationality
Statman & Sepe (1989)	Managers do not finish loss-making projects	Mental accounting and prospect theory

Appendix B. Overview Irrational Investors and Rational Managers

Study	Findings	Explanation
Loughran & Ritter (1997)	IPOs underperform compared to the market	Managers issue overvalued stocks
Ikenberry et al. (2000)	SEOs underperform compared to the market	Managers issue overvalued stocks
Burch et al. (2004)	Existing shareholders benefit at the expense of new shareholders	Managers issue overvalued stocks
Baker & Wurgler (2000)	When there are many new issues, the market underperforms (US-evidence)	Managers issue overvalued stocks
Henderson et al. (2006)	When there are many new issues, the market underperforms (International-evidence)	Managers issue overvalued stocks
Loughran et al. (1994)	When there are many new issues, the market is typically overvalued according to ratios	Managers issue overvalued stocks
Pagano et al. (1998)	There are many new issues when the industry-PB is above average	Managers issue overvalued stocks
Jung et al. (1996)	There are many new issues when the average Price Book Ratio of firms is at a historical high	Managers issue overvalued stocks
Jenter (2005)	Managers privately sell stocks when firms issue them	Managers issue overvalued stocks
Graham & Harvey (2001)	Overvaluation affects the decision to issue stocks (survey)	Managers have an information advantage
Huh & Subrahmanyam (2005)	Particularly individual investors buy newly issued shares	Private investors are more naïve than institutional investors
Ikenberry et al. (1995)	Repurchased stocks subsequently outperform the market	Managers repurchase undervalued stocks
Brav et al. (2005)	Undervaluation affects the choice to buyback stocks (survey)	Managers have an information advantage
Hong et al. (2008)	Firms typically repurchase shares after they decreased	Managers repurchase undervalued stocks
Grinstein & Michaely (2005)	Institutional investors appreciate buybacks more than individual investors	Private investors are more naïve than institutional investors
Dichev (2007)	Firms lower capital cost by new issues and repurchases	Timing/under- and overvaluation
Marsh (1982)	Interest rates influence the decision whether to issue bonds or not	Managers time bond issues
Guedes & Opler (1996)	For newly issued bonds, there is a negative correlation between duration and the interest differential between long- and short-term interest rates	Managers time bond issues
Graham & Harvey (2001)	The interest rate level affects the decision whether to issue bonds or not (survey)	Managers time bond issues
Graham & Harvey (2001)	The yield curve affects the decision whether to issue short- or long-term bonds	Managers time bond issues
Spiess et al. (1999)	Firms that issue (convertible) bonds have lower subsequent stock returns than the market	Managers time bond issues /overvaluation
Baker & Wurgler (2002)	There is a negative relation between past Price Book Ratio and the relation of debt to equity	Mispricing of stocks affects financing decisions
Hovakamian (2005)	There is a negative relation between past Price Book Ratio and the relation of debt to equity	Price Book Ratio includes information about growth prospects
Rau & Vermaelen (1998)	Firms that pay takeovers with stocks underperform in comparison to those that pay with cash	Firms pay with overvalued stocks
Ang & Cheng (2005)	There is a positive link between the number of takeovers and valuation ratios	Firms pay with overvalued stocks
Baker et al. (2009)	Takeovers increase if the average Price Earnings Ratio in the home country of buying firms rises	Firms pay with overvalued stocks
Ravenscraft & Scherer (1987)	The preference for conglomerates varies from time to time	Investors are naïve
Matsuaka (1993)	Until 1968, stocks reacted initially positive to takeover announcements	Investors had an irrational preference for conglomerates in the mid-1960s
Morck et al. (1990)	After 1968, there was no such effect any more	After 1968, the irrational preference for conglomerates disappeared
Klein (2001)	Until 1968, conglomerates traded at a premium, after 1968 they, traded at a discount	Investors have an irrational preference for conglomerates
Baker & Wurgler (2002)	Firms with high Price Book Ratios issue an above-average number of stocks but do not invest the funds	Investment is independent of investor sentiment
Blanchard et al. (1993)	Tobin`s Q does not have a significant effect on investment	Investment is independent of investor sentiment
Gilchrist et al. (2005)	Misvaluation affects corporate financing and investment decisions	Irrational investors influence corporate investment and financing decisions
Polk & Sapienza (2009)	Misvaluation affects corporate financing- and investment decisions if investors have a short term horizon	Irrational investors influence corporate investment decisions
Baker et al. (2003)	Investment is influenced by the dependence on equity	Irrational investors influence corporate investment decisions